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U.S. Public Health Service.

The work of the U.S.P.H.S. during the World War.

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THE WORK OF THE

UNITED STATES PUBLIC HEALTH SERVICE

DURING THE WORLD WAR

THE WORK OF THE UNITED STATES PUBLIC HEALTH SERVICE IN THE WORLD WAR

I. INTRODUCTION

When the United States entered the World War the Public Health Service presented for service a corps of officers unique in organization and experience. It had developed under a military discipline as strict as that of the Army and Navy Medical Corps. In addition its officers were experienced in public health work involving cooperation with officers of the State, local and municipal governments as well as of foreign governments.

In order to give an adequate description of the Public Health Service at this time it may be pointed out the service had its origin in the old Marine Hospital Service, which was among one of the oldest institutions of the federal Government. The necessity for the organization of Marine Hospital Service occupied the attention of the early Congresses, though it was not until July 16, 1798 that the Act creating it was approved.

At first it also functioned as the Naval Medical Service and it was not until 1813 that a separate Naval Medical Service was organized.

Owing to the character of the Service organization it has always readily fitted into military operations in times of war. During the Civil War the hospitals were taken over by the military

authorities. In its reorganization after the Civil War the formation of the Medical Corps was almost identical with that of the Army Medical Corps in discipline, rank, pay, allowances and educational requirement for admission and promotion. This formation and equivalent basis has often been recognized by Congressional reports and enactments.

The last act of Congress affecting the officer personnel was approved June 10, 1922. This Act included the Public Health Service according to rank with the officers of the other military forces of the Government.

Created primarily as a hospital service for American seamen, it has gradually developed into the Public Health Service. This was doubtless due to its utilization by the Government in the epidemics of disease which occurred from time to time.

It was not until 1878 that Congress authorized the use of the Marine Hospital Service in an extensive way as the Federal health service. The act approved April 29, 1878, gave very broad powers to the Service to cooperate with State and local health authorities in the control of disease, especially yellow fever. This act was for the most part a quarantine act to prevent the introduction of contagious and infectious diseases into the United States. Not until the act of March 27, 1890, was passed did Congress specifically recognize the Marine Hospital Service as the Federal health agency for the prevention of the interstate spread of disease. This act authorized the use of the Service for the prevention of only four diseases: Cholera, yellow fever, smallpox, and plague. By the act of February 15, 1893, the powers of the Marine Hospital Service in this regard were extended to cover all infectious and

contagious diseases, in cooperation with State and local health agencies.

Recognizing the efficiency of military discipline of the marine hospital corps in the control of epidemic diseases, Congress passed the act approved January 4, 1889, which authorized by law the organization of the marine hospital corps and provided that the officers be commissioned in grades equivalent to those of the medical department of the United States Army.

The act approved March 3, 1875, had already provided that the Surgeon General should be appointed by the President, by and with the advice and consent of the Senate. This office was created by the act approved June 29, 1870, which defined the duties of the office and provided that the officer appointed be a surgeon.

After the act of 1893, which organized the Marine Hospital Service into the Federal health service, Congress continued to impose additional health functions upon the Service, and on July 1, 1902, passed the act which changed its name to the Public Health and Marine Hospital Service and made it a health service in name as well as function. The larger part of its functions up to this time had been the combating of epidemics, especially those of yellow fever, which from time to time swept over the country.

While the public health functions of the Service had their inception in the prevention of the introduction and spread of quarantinable diseases, its development in logical sequence was brought about by growing public demands for the prevention of disease in general. Therefore, in addition to the quarantine and

hospital functions, the activities of the Service were extended to include research and educational work. The investigative functions began with the investigation of such diseases as yellow fever and cholera, in the early part of the existence of the Service, but it was not until July 1, 1902, that Congress authorized the establishment of the Hygienic Laboratory for this purpose.

From the control of epidemics, the Public Health and Marine Hospital Service began to develop control measures for the more common contagious and infectious diseases, such as typhoid fever, diphtheria, and scarlet fever.

The development of health functions of the Public Health and Marine Hospital Service continued until finally Congress (by the act approved August 14, 1912) changed the name again to its present one, the United States Public Health Service, and at the same time gave it very broad powers to investigate the diseases of man and the pollution of navigable waters of the United States.

FUNCTIONS

At the beginning of the World War the functions of the Public Health Service may be defined as follows:

1. Marine Hospital Service for its beneficiaries.
2. Protection of the United States from the introduction of diseases into it from foreign countries.
3. Prevention of the interstate spread of disease and the suppression of epidemics.
4. Cooperation with State and local health authorities in matters relating to the public health.

5. Investigation of the diseases of man and conditions influencing their spread including the pollution of streams, lakes and other navigable waters.
6. Supervision and control of biologic products.
7. Public health education and dissemination of health information.

Personnel and Administrative Organization.

The Public Health Service is a Bureau in the Treasury Department and is in direct charge of the Surgeon General, whose acts are subject to general supervision and approval by the Secretary of the Treasury. The Surgeon General administers the affairs of the Bureau, through six administrative divisions established by law, as follows:

1. Division of Marine Hospitals and Relief
2. Division of Domestic Quarantine
3. Division of Foreign and Insular Quarantine
4. Division of Personnel and Accounts
5. Division of Sanitary Reports and Statistics
6. Division of Scientific Research

and a Purveying Service, and the office of the Chief Clerk. The Division of Venereal Disease was established during the World War.

The organization of the personnel in the field at the beginning of the World War consisted of: 1. Regular commissioned officers, 2. Scientific personnel, 3. Attending specialists, 4. Acting assistant surgeons, 5. Pharmacists, 6. Internes, 7. Nurses, 8. Clerks, and 9. Other employees.

Duties of the Divisions of the Bureau

Marine Hospitals and Relief. To furnish hospital and dispensary treatment to Federal beneficiaries as prescribed by law, such as Seamen of the United States Merchant Marine, Coast Guard, beneficiaries of the United States Employees' Compensation Commission and others.

Domestic Quarantine. To prevent the interstate spread of epidemic diseases; control of water supplies used by interstate carriers; prevention of epidemics.

Foreign and Insular Quarantine. To prevent the introduction of diseases into the United States; supervise the administration of 97 maritime and border quarantine stations in the United States and its possessions; enforce the United States quarantine laws and regulations; supervise the operations and medical inspection of aliens at the various ports of entry in the United States, which exceed 90 in number; direct the operations of medical officers assigned to American consulates for the purpose of enforcing the United States quarantine laws applicable at foreign ports of departure.

Personnel and Accounts. To provide professional, scientific, and other personnel for the execution of the various activities of the Service; keep the accounts; audit pay rolls; prepare estimates for appropriations to be submitted to Congress; and supervise all financial matters of the Service.

Sanitary Reports and Statistics. To collect and publish in-

formation regarding the prevalence and geographic distribution of diseases dangerous to the public health in the United States and foreign countries; compile digest and publish court decisions, laws, regulations, and ordinances pertaining to the public health; and publish articles on subjects relating to the public health.

Scientific Research. To conduct scientific field and laboratory studies of diseases of man and other public health problems; demonstrate work in rural sanitation; treat cases of trachoma in hospital and field clinics for the purpose of suppressing that disease; supervise the manufacture and sale of viruses, serums, toxins, and analogous products, including arsphenamine and neoarsphenamine, in interstate traffic.

Purveying Service. To attend to the purchase, care, storage, and issue of property, such as drugs, and hospital, laboratory, and office supplies and equipment.

Board of Officers Convened to Outline World War Duties for which the Public Health Service was Specially Fitted.

When the entrance of the United States into the World War was imminent the Surgeon General of the Public Health Service convened a board of officers to outline the war activities for which the Public Health Service was especially fitted by its organization, training and experience.

This board submitted a report dated February 4, 1917, recommending a program of war activities which the Service was prepared to undertake, as follows:

1. The sanitation of ports and places within the United States in order to prepare them for camps of mobilization, concentration, or training for the Army or Navy.
2. The Sanitary supervision of mobilized industrial forces.
3. Medical and surgical relief to sick, wounded, or disabled soldiers and sailors at relief stations of the Service.
4. Medical and surgical relief to mobilized industrial workers.
5. Laboratory operations, including both research and manufacture of serums and vaccines.

This was supplemented by a memorandum, dated April 7, 1917, outlining desirable activities of the United States Public Health Service in the field of industrial hygiene, especially as related to war industries.

Public Health Service Constituted a Part of the Military Forces.

In order to coordinate the war activities of the Public Health Service with the operations of the Military forces the President issued an Executive Order April 3, 1917, constituting the Public Health Service a part of the Military forces, as follows:

EXECUTIVE ORDER

"Under the authority of the Act of Congress, approved July 1,

1902, and subject to the limitations therein expressed, it is ordered that hereafter in times of threatened or actual war the Public Health Service shall constitute a part of the military forces of the United States, and in times of threatened or actual war, the Secretary of the Treasury may, upon request of the Secretary of War or the Secretary of the Navy, detail officers or employees of said Service for duty either with the Army or the Navy. All the stations of the Public Health Service are hereby made available for the reception of sick and wounded officers and men, or for such other purposes as shall promote the public interest in connection with military operations."

The White House,
April 5, 1917. WOODROW WILSON.

Even before a state of war was declared a number of the officers were serving on Coast Guard vessels which were cruising in the war zone. Recognising the danger to which these and other officers would be exposed in the future, Congress passed a Joint Resolution (approved July 9, 1917) fixing the status and rights of Service officers when serving with the Coast Guard, the Army or the Navy as follows:

Joint Resolution to Fix the Status and Rights of the Public Health Service when Serving with the Coast Guard, the Army, or the Navy.

Resolved by the Senate and House of Representatives of the United States of America in Congress assembled, that when officers of the United States Public Health Service are serving on Coast Guard vessels in time of war, or are detailed in time of war for duty with the Army or Navy in accordance with law, they shall be entitled to pensions for themselves and widows and children, if any, as are now provided for officers of corresponding grade and length of service of the Coast Guard, Army or Navy, as the case may be, and shall be subject to the laws prescribed for the government of the service to which they are respectively detailed.

Approved, July 9, 1917.

Following up the policy that the Service was a part of the Military forces, officers of the Commissioned Corps were detailed to the office of the Surgeon General of the Navy, Navy Department and 14 were detailed to the Navy to act as sanitary advisers within each of the 14 Naval Districts of the United States.

In order to be prepared to meet its duties in the policy outlined it was evident that the peace time personnel of the service was inadequate. The Surgeon General therefore directed the preparation of a bill creating an officer reserve corps for the Public Health Service. This bill passed the Senate June 6, 1917, but owing to the internal service politics the bill was blocked in the House of Representatives and did not become a law until October 27, 1918.

The failure of this bill to pass promptly hampered the service somewhat in gathering together a sufficient number of trained sanitary personnel.

It created doubts in the minds of many as to what their military status would be. These men were patriotic and felt that on entering the war they wanted the definite recognition of a definite military capacity.

This attitude of mind may be criticised by some, who felt that anyone should be so grandly patriotic as to be willing to serve in the capacity they were best suited without regard to military recognition and military honors, but the human mind usually desires that if a sacrifice is to be made for patriotic reasons it should bring a real and definite recognition which is seldom found outside of a military status.

As a consequence of this indefiniteness as to a military status in the Public Health Service, many well trained public health men went into

the Army and Navy and by those organizations were placed in training camps for duty in hospitals.

Those who came into the Public Health Service were hampered somewhat in their work owing to the fact that the Service could not provide a rank commensurate with their important duties and relations in the cantonments and extra cantonments zones or elsewhere.

In spite of these handicaps the Service expanded to meet the needs as outlined in the above program. At the end of the fiscal year June 30, 1917 the professional personnel numbered 538, on June 30, 1918, it numbered 1,472.

In discussing the war activities of the Public Health Service, it is recognized now that the Service acquitted itself with credit and never failed to meet any of the emergencies which presented, but it would have attained greater credit and national recognition if it had been definitely placed in the military forces with a definite place in those forces to do the work for which it was trained. This would very probably have been accomplished if it had not been the fear of a few officers that after such a transfer or detail the Service would have been broken up and its personnel distributed to work for which they were not trained. These officers foresaw details to training camps for hospital duty, when they knew they had a definite public health duty to perform. They feared this in spite of the assurances received that such would not be done.

A very large majority of the professional personnel believed in the assurances and were anxious to be placed definitely in the military forces, feeling that they could perform their public health duties without the handicaps they were then laboring under.

Matters of policy in regard to the program outlined continued to develop difficult situations. For example the Medical Department of the Army believed that it should have control of the sanitation of the extra-cantonment zones, but in the beginning the Public Health Service had as stated above a Corps preeminently suited for this work through its military discipline and its experience in cooperating with civil health authorities. Even so in several instances the Army almost compelled the Service to yield this control.

On the other hand the operation of the draft act began to make the officers of the Public Health Service in the draft age feel unpleasant. It is true that the regulations of the Provost Marshall General exempted the Service Officers, but the language was somewhat indefinite. It was so indefinite that some officers registered under the act and some did not.

The attitude of some of the more prominent Public Health men of the country began to add uncertainty to the position of the Service. Conditions grew more acute especially when some of the Public Health Service officers were detailed with the Army, Navy and Coast Guard. Some of those officers not so detailed began to ask for definite military duty. When this was denied them, they began to ask for leave in order to go into military service. When this was denied they sought to resign to such an extent that the Bureau had to decline to accept resignations.

In November, 1917, the Officers Committee met and after consideration of the situation submitted a memorandum to the Surgeon General stating that the Public Health Service in its entirety should be ordered for dut either under the Army or the Navy.

This memorandum was signed by four of the five members of the Committee elected to represent the Commissioned Corps of Officers. One member declined to sign and submitted a minority report. The memorandum was as follows:

November 15, 1917.

"

MEMORANDUM FOR THE SURGEON GENERAL.

The Executive Committee of the Mutual Benefit Association of the Public Health Service in a meeting held November 12, 1917, presents the following resolution for consideration: "

"RESOLVED, That it is desirable and in the interest of the Nation that the U. S. Public Health Service in its entirety be ordered for duty either under the Army or the Navy for the duration of the war in accordance with the authority provided by executive order of April 3, 1917, constituting the U. S. Public Health Service a part of the Military forces of the United States."

"The Committee has adopted the above resolution believing that such action would in no way impair the efficiency of the Service for the performance of its civil functions, and would at this time be of material aid to the sanitary corps of the Army in the maintenance of hygienic conditions for the military forces and the war industries. The reasons that such results may be expected are briefly as follows:"

"1. There would at once be effected a greater degree of coordination of the work now in progress for the sanitation of the cantonments and the extra-cantonment zones. It would make it possible for one executive head to administer the sanitary matters for both areas, backed

by military authority to speedily enforce all reasonable regulations."

"2. Under the military necessity of protecting the health of the troops stringent regulations could be promulgated and war funds used for correcting insanitary conditions."

"3. The detail of the Service as proposed would give a greater field of usefullness in the work for improving hygienic conditions under which the industrial army is now serving. The military authorities could make their contracts for war materials subject to supervision by the Sanitary Corps."

"4. The Marine Hospital reservations would offer convenient sites for the erection of a large number of temporary wards, administered from present executive buildings."

"5. The quarantine service now adjusted to civil needs will necessarily have a much greater strain placed upon certain stations when large bodies of sick and disabled troops are returning to the United States. Proper coordination of the quarantine with the military needs would be greatly facilitated if both are controlled by the same department. Furthermore, with the War Department responsible for the quarantine function that Department would have a greater interest in the enforcement of proper protective measure."

"6. The enforcement of interstate quarantine regulations, especially those relating to the movement of troops and food supplies, would be easier.

This would necessarily add greatly to the protection of both the civil and military population."

"7. Through the existing laws and regulations for the cooperation of national, State and local health authorities the military and civil

health authorities would be brought into closer relations which would doubtless improve on the work of both."

"8. Under the existing crisis it is believed that every person should render the greatest service to the Government that he is capable of performing, no matter at what sacrifice, and it seems to the Committee that the Service and its personnel could be utilized to a greater degree of efficiency as outlined above without in any way impairing the purposes for which the Service was created and is maintained."

"9. In this way it would be possible for the personnel of the corps to engage in active military duty, and each would have the greatest satisfaction in the knowledge that he had a recognized share in winning the war. It would also be a source of pride to each to know that he had given his best service to his country."

"10. A definite military status with a maximum of service during the war would greatly add to the development of the Service after the war is over."

"11. The experience gained by war duties would not only develop the present personnel, but also a large additional force of trained sanitarians, who will be ready to cooperate with the Service in civil health duties."

"12. The service, having served creditably during the war as a part of the military forces, would, when peace is declared, automatically revert to its present civil status and would naturally bring with it the large force of trained sanitarians who will then be giving up their active duties with the Army. It will be easy to take over such

a force as there will be plenty of civil health duties for all, and Congress will not hesitate to reward them for their services provided it can be done in the best interest of the public health."

"13. A number of these would doubtless desire to return to their respective States and could there be utilized to great advantage by State and local health organizations. This would build at once a compact, disciplined, and efficient working health organization for the United States composed of men who are comrades from the great war."

"The Committee believes this memorandum deserves most earnest consideration, and also believes the proposed detail of the Service to the War Department to meet the approval of at least 80 per cent of the personnel of the Corps. Furthermore, it is our desire that appropriate action be taken at the earliest practicable date, under such arrangements as may be determined upon in order that the detail may be effected without delay."

Respectfully,

(Signed)	J. C. Perry Chairman Senior Surgeon
"	H. S. Cumming Surgeon
(Not signed)	L. L. Lumsden Surgeon
(Signed)	Edward Francis Secretary Surgeon
(Signed)	B. S. Warren Surgeon

1. Surgeon L. L. Lumsden voted against this resolution and submitted a minority report as follows:

November 16, 1917.

Surgeon General,

U. S. Public Health Service,

Washington, D. C.

Sir:

I have the honor to state that it is to me a matter of regret that the Executive Committee of the Mutual Benefit Association of the Public Health Service can not reach a unanimous agreement on the plan of administration of the Public Health Service which would promise to be most effective in the present national crisis.

The majority of the Committee today adopted the following resolution:

RESOLVED, That it is desirable and in the interest of the nation that the U. S. Public Health Service in its entirety be ordered for duty either under the Army or the Navy for the duration of the war in accordance with the authority provided by executive order of April 3, 1917, constituting the U. S. Public Health Service a part of the Military forces of the United States.

I could not concur in this resolution because I believe that the Public Health Service administered as a Bureau of the Treasury Department working singlemindedly as a homogeneous health organization of the Federal Government can be more effective in helping our one hundred million people to win the war, in which not only the military forces but the whole nation is engaged, than it could be if it were transferred to and made an integral part of or disseminated among the military forces of the Army or the Navy.

Some of the reasons for this belief are as follows:

1. The strength of our fighting force will depend upon the extent of our resources and the degree of intelligence exercised in the use of our resources.

2. The fighting force must be fed, clothed, trained, equipped with the machinery of war, and transported from place to place.

3. We will need to "speed up" our human energy and do all possible to prevent lost motion.

4. The conservation of the health of our people is now more important to our nation than ever before.

5. We can less afford to have our people crippled or killed by preventable disease than ever before.

6. The maintenance of the highest degree of efficiency possible among our laborers in factories, fields, forests, and mines and on railways and ships is a vitally important part of the war business.

7. Some of the thousands of children of this country who, under existing conditions, within the next 12 months will die from readily preventable diseases may be needed at the battlefront before the war is won.

8. Sanitation of civilian communities is a war measure of great importance.

9. The conduct of a nation-wide reasonably adequate campaign for sanitation would be a big business.

10. The Public Health Service with its present laws, trained personnel and equipment is the logical nucleus around which to build up an adequate national health organization and through which to have coordinated the activities of State, county and municipal health organizations.

11. If sanitation of civilian communities were presented to the people as a war measure along the same general lines as the food conservation propaganda recently has been presented, our vital capital could be tremendously increased in a very short time.

12. Specialization is necessary to efficiency. The sanitation of civilian communities requires work involving principles different from those for the sanitation of military establishments. Each is a specialty for the proper performance of which special training is necessary. The Army and Naval Medical Corps are the logical nucleus around which to build up adequate organizations to look after the sanitation of the military establishments. To place upon either of them, with their proper functions already demanding their utmost energy, the administration of the Federal' Government's part in civil health work, for which the Public Health Service is created and is maintained, would seem opposed to the principles of administrative efficiency.

13. The Public Health Service personnel is trained in the principles and practice of sanitation under civilian conditions and untrained for duty under military conditions. To take them in any considerable proportion from duties of vital importance for which they are trained and give them duties of equal importance for which they are untrained would necessarily result in lost motion. The Service is now doing remarkably effective work, in view of the size of the force engaged, for the protection of the health and lives of the soldiers and sailors in our national camps. From close observation of the sanitary work in twelve of the extra-cantonment areas it appears

highly improbable that the officers engaged in this work could be as effective if they were a part of the Army or the Navy as they are in their present capacity.

14. Personal satisfaction in having meritorious service recognized is not so important to the nation as is having meritorious service performed. With Public Health Service Officers as with all other Americans the question now is not what we wish to do but what we ought to do.

If the work of the Public Health Service as a public health service with its remarkable spirit of team work manifested in its fights against epidemics of yellow fever and bubonic plague and against insanitary conditions in our vast rural districts ever were needed that time is now. It seems, therefore, that instead of urging that the Public Health Service in its present capacity is incompetent or even useless, as the resolution adopted by the majority of the Committee appears to me to do, we should endeavor with the assistance of the many forces which have been trying to help us to have the Service strengthened and its efficiency raised to the highest possible point so that we may do well the great war work which is ours to do.

Respectfully,

(Signed) L. L. Lumsden,

Surgeon.

The status of the Service in this regard not only was receiving the consideration of its officers as set forth above, but it was receiving consideration of prominent medical and public health men of the country, as evidenced by a memorandum submitted January 2, 1918 to

Dr. Franklin Martin, Chairman, Committee on Medicine and Sanitation Advisory Commission, Council National Defense, and sent by Dr. Martin to the Secretary of War.

Dr. Martin states in his letter transmitting the memorandum that the consensus of opinion of the Executive Committee of the General Medical Board of the Council of National Defense was in favor of the transfer of the Public Health Service to the Medical Department of the Army. This Board consisted of the Surgeon General of the Army, Surgeon General of the Navy and Surgeon General of the Public Health Service, Dr. Wm. H. Welch, Dr. F. F. Simpson and Dr. Franklin Martin. Copies of the letter of transmittal and memorandum follow:

January 10, 1918.

Honorable Newton D. Baker, Chairman,
Council of National Defense,
War Department,
Washington, DC.

My dear Sir:

Based upon the accompanying memorandum, I am submitting the following proposed order with the recommendation that it be considered by your body and if approved that it be called to the attention of the President for his consideration and action.

"Under the authority of the Act of Congress approved July 1, 1902, in order that the United States Public Health Service may be utilized during the existing war to such an extent and in such a manner as shall promote the public interest, without in anywise impairing the efficiency of the service for the purposes for which the same was created and is maintained; and that the health service of the

nation and of its Army may be coordinated, it is ordered that, for the period of the war and the revocation of this order, the Public Health Service shall constitute a part of the military forces of the United States and that the Surgeon General and other officers and the enlisted personnel and employees thereof, report to the Surgeon General of the Army for duty; and the powers, duties and functions of the Service are transferred to and vested in the Surgeon General of the Army, who is hereby charged with the responsibility for the health of the Army and of the nation upon which that of the Army depends, during the war and fully authorized to use such agencies as are under his control for the preservation of the public health and the national efficiency dependent upon health."

1. Please note that the accompanying memorandum is signed by Victor C. Vaughan, President, Michigan State Board of Health, A. J. Ochsner, Regent of the American College of Surgeons, W. J. Mayo, President of the American College of Surgeons, Seale Harris, Secretary of the Southern Medical Association, Arthur T. McCormack, State Health Officer of Kentucky, and C. H. Mayo, President of the American Medical Association.

2. The within recommendation has been approved by the Surgeon General of the Army and the Surgeon General of the Navy.

3. The subject matter of this recommendation has been discussed at various times by the Executive Committee of the General Medical Board of the Council of National Defense, consisting of the Surgeon General of the Army, the Surgeon General of the Navy, the Surgeon General of the Public Health Service, Dr. William H. Welch, Dr. F. F. Simpson and myself, and it has been the consensus of opinion

that the arrangement suggested in the accompanying memorandum is not only desirable as a war measure but also authorized by law.

4. Please note at the end of the memorandum (a) the law on this subject was enacted on July 1, 1902, and (b) an executive order by President Wilson on April 6, 1917.

Respectfully submitted,

(signed) Franklin Martin

Chairman,
Committee on Medicine and Sanitation
of the Advisory Commission of the
Council of National Defense.

January 2, 1918.

MEMORANDUM:

1. In time of war everything must be so co-ordinated as to win. The evident strategy of a national health service in war recognizes cantonments and other military rendezvous as the centers from which or toward which a continuous stream of non-immunes to the various infectious diseases flows. The duty of a national health service in time of war is (1) to prevent the spread of disease to, into, or from the military forces; and, (2) to accomplish this end more readily, they should keep in constant, intimate touch with local civil health authorities so they may know the geographical distribution of endemic and epidemic communicable diseases, and, in cases when any of them threaten the efficiency of the military forces and the local authorities are not able to control it, the national health service should render such assistance and assume

such control as may be found necessary. (3) Maritime and internal (railroad) commerce in time of war are controlled by the Commander-in-Chief of the Army. Civil interference with troop movements is impractical. Maritime and inland quarantine of troops and non-combatant forces is essential to national health. (4) A considerable percentage of men of draft age are rejected because of remediable defects, such as trachoma, malaria, or hookworm disease. Such men should be assembled in existing marine hospitals and cured with a view to increasing the number and effectiveness of first line troops. This is impracticable unless such institutions are under military control.

2. At present health in the Army is under the control of its Surgeon General with the personnel of its Medical Corps. He must expand, organize and train a sanitary corps to protect the troops, 3% of the people of the country. The United States Public Health Service, with a personnel wholly inadequate in numbers and without enough money, has charge of the national health problems affecting these troops directly as well as of the remaining 97% of the civil population, including in the latter the farmers, laboring men in railroads, boats, munition plants and elsewhere, whose health and efficiency are essential to success. It is in touch with the state and local health organizations.

3. Communication between co-ordinate authorities in different departments involves delay and inefficiency, both fatal to successful health administration.

4. Military control of civil conditions is abhorrent to our traditions and institutions in time of peace. In time of war all of the authority and responsibility for a particular branch necessary

to win should be centered in one officer as near as possible to the Commander-in-Chief. Complexities must be removed.

5. For the period of the war, the Surgeon General of the Army should be given ample authority and held strictly responsible for the national health and the nation's efficiency so far as efficiency is dependent upon health.

6. For the period of the war, the personnel, duties, powers and functions of the United States Public Health Service should be transferred to and vested in the Surgeon General of the Army, as provided by law. Its hospitals, quarantine stations, interstate and maritime quarantine functions, including extra cantonment zone work would continued as transferred. Many trained sanitarians in charge of routine or hospital work could be replaced by Medical Corps men qualified for such work. The trained sanitarians and executives of the Health Service would not only supply much needed sanitary inspectors and other sanitary executives for armies and divisions, but also, because of their trained experience could multiply their usefulness as instructors to sanitary officers and troops and by detail to them of officers and men who would become of greatly increased value under such guidance. The usefulness of such an organization does not need to be amplified.

7. It must be recognized that the relations between the United States Public Health Service and the Secretary of the Treasury have been pleasant to both and effective in the national health service as limited in times of peace, and that it is not the purpose of this suggestion to remove the Service from the Treasury Department nor its control. It is simply desired to galvanize the sanitary service of

the nation and the Army under one head by the incorporation in it of the personnel and functions of the health arm of the government during the war. In order to secure for the personnel of the United States Public Health Service the rank--i.e. the War Department's stamp of individual evaluation so each can accomplish the results for the nation for which he is best equipped--it is desirable that, for the period of the war, officers of the service be given rank in the Army as of the age of their commissions.

8. The advantage to the personnel of the Service of participation in the successful administration of the national sanitary service, required to win the war, in which civil and military sanitation is indivisible, and the possible incorporation with it after the war of the needed additional sanitary officers who will have been trained by them, needs but be suggested.

9. The Medical Corps of the Army is able to secure the services of enough qualified medical men from civil life to man its hospitals and care for its sick and wounded with a minimum of hardship for the people of any community. There is no state of municipal sanitary organization from which trained sanitary technicians can be drawn without great danger to national health. The only way in which the national health service may be quickly made adequate in the existing emergency is by the elimination of all lost motion and the combination and co-ordination of all existing national health agencies under the direction of the Surgeon General of the Army for the period of the war.

Signed Victor C. Vaughan
Pres., Mich. State Board of Health

" A.J.Ochsner
Regent of the American College of Surgeons

" W. J. Mayo
President, American College
Surgeons

" Beale Harris
Secretary, Southern Medical
Association

" Arthur T. McCormack
State Health Officer of Kentucky

On January 11, 1918 this matter was taken to the Cabinet Meeting, but the Secretary of the Treasury was not present so it was not approved. The Secretary of War therefore addressed the following note to the Secretary of the Treasury.

January 11, 1918.

My dear Mr. Secretary:

I beg leave to hand you herewith a memorandum signed jointly by a good many distinguished medical men involving the proposed emergency co-ordination of the Public Health Service with the Office of the Surgeon General of the Army. I took this paper to the Cabinet meeting to-day and brought it to the attention of the President with the statement that I did not ask any consideration for it until it had been submitted to you and approved by you. I am told that the Surgeon General of the Public Health Service is not averse to the plan here suggested. The President asked me to bring the matter to your attention so that his consideration of it could be in the light of any comments you may make on the plan proposed.

Cordially yours,

(signed) Newton D. Baker,

The Honorable,
The Secretary of the Treasury.

In replying to those communications the Secretary of the Treasury accepted the minority view of the officers of the Public Health Service and declined to approve the transfer of the Service as a whole to the Army. He quoted an old act of congress as prohibiting it, though he did state that it would not prohibit the securing of Congressional approval if he had thought it for the best.

Evidently he concurred in the opinion of some of the officers that the service would be broken up and its personnel detailed to other duty.

His letter follows:

February 8, 1918.

My dear Mr. Secretary:

I have your letter of the 11th of January, enclosing a letter from Dr. Franklin Martin, Chairman of the Committee on Medicine and Sanitation of the Advisory Commission of the Council of National Defense, proposing the coordination during the period of the war of the Public Health Service of the Treasury Department with the office of the Surgeon General of the Army, including the transfer of the personnel and functions of the former to the latter. I have given careful consideration to the question and am firmly of the opinion that the change should not be made.

The suggestion is based on section 4 of the Act of Congress approved July 1, 1902, which authorized the President, in his discretion, to utilize the Public Health and Marine Hospital Service in time of threatened or actual war to such an extent and in such manner as shall in his judgement promote the public interest without,

however, in anywise impairing the efficiency of the Service for the purposes for which the same was created and is maintained.

Section 12 of the Act of Congress approved February 14, 1903, entitled "An Act to Establish the Department of Commerce and Labor," authorized the President, by order in writing, to transfer any part of any office, bureau, division or branch of the public service engaged in statistical or scientific work, from other departments to the new Department of Commerce and Labor. A short time thereafter some objections arose to the possible transfer of the Bureau of the Public Health and Marine Hospital Service from the Treasury Department to the Department of Commerce and Labor. Accordingly, an Act approved March 18, 1904, provided" - - - and said Service shall remain under the jurisdiction of the Treasury Department until otherwise hereafter specifically provided by law." (Vol.33, Part 1, U.S.Stat. at Large, p.104).

Inasmuch as it appears that no such specific legislation has since been enacted, the Solicitor of the Treasury expresses the opinion that the proposed transfer of the Service or any of the functions by executive order is prohibited by the clause contained in the Act approved March 18, 1904.

The above relates to the legal aspect of the question and while this is immediately controlling, it is not fundamental because if the proposed change were justified in the interest of public welfare, the matter could be presented to the Congress and an effort made to obtain the necessary legislation to remove the restriction. My primary objections to the proposed transfer are based on other grounds.

To win this war, everything must be done that possibly can

be done to mobilize the might of the nation and raise our military, industrial and economic forces to the point of highest efficiency. From the standpoint of the public health this applies not only to the Army and Navy, but to our population as a whole from which the Army and Navy are drawn and from which they receive their sustenance and support. It applies in equal measure to the workers in our factories, our fields, our forests, our mines, on our railways, and on our ships. There is no more important function of the Government at this time than the protection and improvement of the public health.

It has been stated that the Medical Corps of the Army has, or will have, jurisdiction over the health of approximately three per cent of our population. It examines and passes upon the physical condition of the men entering the Army, and is responsible for the health of the soldiers, the sanitation in the camps, and the care of the sick and wounded. The Public Health Service, in cooperation with State and local health officials, is doing its utmost to protect and improve health conditions around the cantonments, the health of laborers and the people generally and the sanitation of the country.

The Medical Corps of the Army plays a very important part in connection with our efficiency as a belligerent; the Public Health Service performs duties and exercises responsibilities of equal importance in the same connection. The functions of these two services, however, are entirely distinct. They do not conflict or overlap and there is no division of responsibility in any sense. On the contrary, they complement each other. The jurisdiction of the one lies entirely within the Army and Army camps; the jurisdiction of the other stops at the gates of every camp and cantonment. In these circumstances, they

need no coordination further than that which now exists for the reason that they are already effectively coordinated under the President.

Instead of transferring the functions of the Public Health Service to the War Department, I am firmly convinced that they should be strengthened and enlarged so as adequately to protect the health of the nation and thereby increase our efficiency in every activity of the war. With ample authority and funds, this will also result in improving the health and physical condition of our manhood for the purposes of the Army.

In a communication dated May 21, 1917, this Department recommended additional legislation to the Congress. On the 26th of December, I also addressed a letter to the Chairman of the Committee on Interstate and Foreign Commerce of the House Of Representatives, urging immediate and favorable action. I quote from the latter communication in part, as follows:

"Since the action by your committee, the seriousness of the situation has increased. There is immediate need therefore of the means which this measure will provide to coordinate the health forces of the country and to render their efforts more effective in meeting the present situation. By reason of the establishment of military camps and the development of unusual activities on account of the war, many localities are faced by new local problems which they are unable alone to meet.

"On account of the location of many of the military camps in malarious areas, some of them highly so, and because of the greatly increased travel to and from these areas, measures for the control of this menace are necessary. Any measures, to be effective during the

coming season, must be taken immediately. This preventive work, not only to control malaria but other communicable diseases liable to spread in interstate traffic will need to be performed in civil areas over which the military forces have no jurisdiction.

"The control of venereal diseases is likewise pressing. More than 250 per 1000 of a large group examined for the new national Army were said to be so affected. They are even more diffuse in character and dangerous than the gases of any enemy. Their undue prevalence is certain to affect adversely the prosecution of the war and to undermine the health of large numbers of individuals. They present the gravest of all public health conditions. In order to meet this condition, there must be coordination of effort on the part of the Federal, State and local health agencies".

In this connection, I should point out that there are pending two bills, one for the creation of a Public Health Reserve, and appropriating $2,000,000 for the purpose, and the other appropriating $600,000 to increase the personnel of the Service and afford adequate means of investigating and improving the health and working conditions in munition plants, and all other industrial establishments necessary to the conduct of the war.

To equip the service adequately for war purposes, its normal functions have been reduced in some directions, increases in others, and new activities have been undertaken. Some of the important things which the Service is doing, or proposes to do, are:

(1) Coordination of Federal, State and local health forces.

(2) Sanitation of ports and places, including extra military areas, in cooperation with State and local

health authorities.

(3) Extending the system of collection of reports of disease prevalence.

(4) Protection of the health of industrial workers.

(5) Prevention and control of malaria.

(6) Control of venereal diseases.

(7) Improvement of milk and water supplies, and sewerage.

(8) Supervision of water and ice supplied by interstate carriers.

(9) Control of epidemics.

(10) Prevention of the spread of disease in interstate commerce.

(11) Protection of child life.

(12) Investigations of stream pollution.

(13) Investigations of coastal waters with a view to protecting the oyster beds.

(14) Rural sanitation.

(15) Control of international and interstate quarantine.

(16) Investigations in bio-chemistry.

(17) Supervision of the manufacture and sale in interstate traffic of serums, viruses, toxines and vaccines.

(18) Education in public health matters.

(19) Encouragement of local health administration.

These are matters of large importance and relate to work for which the Public Health Service is peculiarly fitted by training and experience. There can be no more important health work than that which is already being done by the Public Health Service and which will be

enlarged as soon as the necessary appropriations are granted by the Congress. If this service were absorbed by the Army Medical Corps, I should fear that it would naturally lose its identity in great measure and its functions thereby suffer at the expense of the nation and the Army as well. If its functions and duties were not curtailed, the only accomplishment of the suggested transfer would be a change in direction.

I have gone to some extent in expressing my views about the situation because of the vital importance of the question. I am sure that after a careful consideration of the matter in the light of the facts mentioned above you will agree with me that there is no reason to consolidate the two services, but, on the contrary, they should continue to perform their respective duties in harmony and close cooperation.

The Public Health Service, under my instructions, is already doing everything possible to cooperate with you and assist the Surgeons General of the Army and Navy, and I have, in fact, permitted transfers of some of the Public Health Officials to these two branches of the service when they could ill be spared from the important work in which they were engaged.

It should always be borne in mind that the Public Health Service is designed to protect the health of the great civil population of the United States, which is a matter of vast importance; that the work of the Medical Corps of the Army is to protect the health of the Army of the United States. The functions are essentially different--each is indispensable. I should think that what you want to accomplish can be better accomplished through the proper enlargement of the Army

Medical Corps and I would suggest that this remedy be adopted. I am sure that the people of the United States would look with apprehension, if not with grave concern, upon any diversion of activities of the Public Health Service and particularly upon anything which would destroy its identity and negative or even minimise the efficiency of the service it is now rendering to the civil population of the United States.

Faithfully yours,

(Sgd) W. G. McAdoo.

Hon.Newton D. Baker,
Secretary of War.

Experience and time developed the facts that the work of the Public Health Service was not well coordinated in the extra-cantonment sanitation and industrial hygiene.

The Army continued in its efforts to take over these activities and many men of national prominence in Public Health affairs not only did not enter the Public Health Service, but went with the Army and Navy Medical Departments.

Finally the Army detailed Medical men to do some of the work of the Service. For example a Lieutenant Colonel of the Medical Corps, U. S. Army was detailed to the Shipping Board to take charge (as military officer) of the Sanitary Service.

The Army asked the Public Health Service to turn over extra-cantonment work about New Port News, Va. and a refusal on the part of the Service did not add to the cooperative spirit.

Realizing that a transfer to the military forces was not to be, the

Service continued to perform its duty to a reasonable degree of efficiency in spite of the handicap. The friction reached such a degree that the President had to sign an Executive Order confining all Civil Health Activities incident to the war to the Public Health Service.

EXECUTIVE ORDER

Whereas, In order to avoid confusion in policies, duplication of effort, and to bring about more effective results, unity of control in the administration of the public health activities of the Federal Government is obviously essential, and has been so recognized by acts of Congress creating in the Treasury Department a Public Health Service, and especially authorizing such Service "to study the diseases of man and the conditions influencing the propagation and spread thereof" and "to cooperate with and aid state and municipal boards of health";

Now, therefore, I Woodrow Wilson, President of the United States, by virtue of the authority vested in me as Chief Executive, and by the Act "authorizing the President to coordinate or consolidate executive bureaus, agencies, and offices, and for other purposes, in the interest of economy and the more efficient concentration of the Government", approved May 20, 1918, do hereby order that all sanitary or public health activities carried on by any executive bureau, agency, or office, especially created for or concerned in the prosecution of the existing war, shall be exercised under the supervision and control of the Secretary of the Treasury.

This order shall not be construed as affecting the jurisdiction exercised under authority of existing law by the Surgeon General of the Army, the Surgeon General of the Navy, and the Provost Marshall General in the performance of health functions which are military in character as distinguished from civil public health duties, or as prohibiting investigations by the Bureau of Labor Statistics of vocational diseases, shop sanitation and hygiene.

WOODROW WILSON

THE WHITE HOUSE,
1 July, 1918.

(No.2899.)

This order signed July 1, 1918, settled for the time the province of the Service in these matters. It however, did not aid the Service in getting personnel, nor prevent some of its younger officers from resigning.

The question of military status not only affected the Public Health Service officers, but also the State, municipal and county health officers. All were restless and desired to be in the military medical forces, in fact many gave up their health work to enter the military service and often were detailed to duties for which they were not trained. There were many conferences on this subject between these officers and the Bureau of the Public Health Service. If the war had lasted much longer the pressure would have been so great that doubtless some plan would have been forced whereby all health officers - Federal, state and local - would have been mobilized into a sanitary corps and placed under the Medical Department of the Army with directions that they be utilized in the fields indicated by their special experience. The status of these officers was becoming so acute that it was only the sudden ending of the war that prevented a disintegration of state and local health organization. The only thing which would have prevented this would have been definite action, placing them as organizations in the Military forces.

These matters of internal affairs of the Service are related in order that some corrective legislation might be passed. It further shows the excellent discipline of the Corps. They accomplished a tremendous task as the results now show even though they knew their work would not receive the same degree of recognition as their brother Medical Officers detailed to the Army and Navy.

In the light of these experiences Congressional enactments should be obtained now fixing definitely the military status of the Public Health Service in time of threatened or actual war.

The work of the Public Health Service during the World War was developed according to the program as outlined in the report of the Board Officers convened by the Surgeon General. This report was completed and forwarded to the Surgeon General February 4, 1917.

The extent of the activities of the Service during and after the war may be understood by reference to the following tables showing the increase in expenditures and personnel of the Service.

It is significant that throughout the emergency involving an increase, almost without precedent in swiftness, in expenditures from about $3,000,000 to about $50,000,000 and an increase in personnel from about 3,000 to about 23,000 employees, the regular commissioned corps of the Service, upon which fell the whole of the supervisory work pending the training of other employees, was not materially increased and remained nearly constant at 200 officers. The principal reason for this was the inability to obtain candidates during war time conditions to meet the Service standards. This condition also obtained with respect to other medical employees and others trained in Service work. The magnitude of the operations is emphasized by the expenditure of approximately $3,00 ,000 annually in the so called salary "bonus" and an increase in the central office force of about 700 clerks. The figures given below are averages for the periods.

Public Health Service

	Before the War	During the War	After the War
Hospitalisation	[illegible]	750,000.00	[illegible]
Pay of Regular Commissioned Officers	675,000.00	750,000.00	1,000,000.00
Pay of Other Medical Officers	200,000.00	300,000.00	300,000.00
Pay of Other Employees	500,000.00	640,000.00	840,000.00
Interstate Quarantine	15,000.00	1,265,000.00	25,000.00
Control of Biologics		50,000.00	50,000.00
Protecting Health of Military Forces		500,000.00	
Increase of Compensation (Bonus)		35,000.00	3,000,000.00
Venereal Disease Work		1,400,000.00	1,400,000.00
Combatting Spanish Influenza		1,000,000.00	

Public Health Service

	Before the War	During the War	After the War
Regular Commissioned Officers	186	212	201
Reserve Commissioned Officers	0	0	966
Other Medical Officers	282	485	1,001
Scientific Employees	39	336	2,414
Trained Nurses	11	29	1,000
Other Trained Employees	129	242	16,062
Attendants	1,418	2,527	
Central Office Clerks	45	106	784
TOTAL	2,090	3,934	23,228

II. PUBLIC HEALTH OFFICERS DETAILED TO THE U. S. NAVY.

Early in the War the Surgeon General of the U. S. Navy requested (through channels) the Surgeon General of the Public Health Service to detail officers to the Navy to assist in matters affecting sanitation. Accordingly Surgeons H. S. Cumming and C. Fox were detailed to the office of the Surgeon General of the Navy and 14 officers were detailed one each to each of the 14 Naval Districts as sanitation officers. These officers were relieved from all duty in the Public Health Service and for the duration of the War were a part of the Navy sanitary organization.

The following report of their work is taken from the annual report of the Surgeon General of the U. S. Navy:

"The experiences passed through during the year have proved the wisdom of creating a special division of sanitation in the bureau. In accordance with existing law which authorized the assignment of officers of the United States Public Health Service to the Army and Navy in time of war, 13 officers of that service were detailed for duty with the Navy in June, 1917, and one was placed in each naval district to assist and cooperate with the medical aide to the commandant.

"Realizing the vastly increased importance which all sanitary considerations assume in time of war and desiring to elaborate and systematize our efforts in this field, a new division of sanitation was organized in the bureau with Lieutenant Commander J. H. Phelps, Medical Corps, United States

Navy, in charge. Surgeon General R. Blue, of the United States Public Health Service, contributed in no small measure to the success of this undertaking by the happy selection of Surgeons H. S. Cumming and C. Fox, United States Public Health Service, as expert advisers to this division. The hearty cooperation of these officers and of those detailed for work in the various naval districts, their zeal and ability, have been of the greatest assistance to the bureau and to the service at large."

"The duties of the sanitation officers attached to the several naval districts are to advise with and assist the medical aide in all matters relating to the public health and sanitation. Their duties take them constantly into all parts of the naval district to inform themselves and to keep the commandant and the bureau fully informed as to health conditions and sanitation.

"The following instructions have been given for their general guidance:

1. To make regular inspections of the sanitary conditions of naval stations and all places within the naval districts to which they are assigned, with special reference to water supplies, sewage, garbage, and manure disposal; to the introduction, presence, and disposition of cases of communicable diseases; to the presence of disease-carrying insects or of conditions favoring their growth; to the facilities for messing and housing the personnel.

2. To secure information by personal observation and through civilian health authorities as to the prevalence of communicable

diseases and sanitary conditions in the areas around naval stations and in localities from which recruits are collected.

3. To advise and assist in eradicating any communicable disease that may make its appearance in the district, and to make such epidemiological investigations as may be necessary and practicable.

4. To make special effort to secure information as to the quality of water and milk supplied both to naval forces and to the civil populations in the immediate environments of camps and stations, and as to methods of disposal of sewage, etc., in such localities.

5. To direct particular attention to the presence of disease-bearing mosquitoes as well as to mosquito breeding areas either within the camp or within its immediate environment.

6. To determine as far as practicable the prevalence of venereal diseases in the civil communities adjacent to camps and stations, and to enlarge the measures used for their control.

7. To make reports, once a month, and oftener, if necessary, to the Surgeon General (Bureau of Medicine and Surgery) via the medical aide and commandant of the naval district, giving the results of inspections together with recommendations when necessary, and a summary of work performed during the previous month.

8. In addition to the foregoing, to hold themselves in readiness to perform any unusual duties of this nature which circumstances suggest or which the commandant of the district may deem advisable. All of these officers have rendered

valuable service."

"The work of the members of the United States Public Health Service detailed to duty with the Medical Department of the Navy in the capacity of sanitary advisers of the commandants of naval districts and their medical aides and as inspectors of yards and stations and adjacent territory has been satisfactory in the extreme. Their experience and special training qualified them to perform this important work in a thoroughly efficient manner and they have one and all displayed most commendable energy and ability."

III. HOSPITAL SERVICE TO OFFICERS AND MEN OF THE UNITED STATES ARMY AND NAVY.

In accordance with Executive order dated April 7, 1917, all of the stations of the Service were made available for the reception of the sick and wounded officers and men of the Army and Navy. Ellis Island was taken over by the Medical Department, United States Army, and was operated by that Department for the period of the war. The United States Marine Hospital, Stapleton, New York City, was not taken over by the Navy, but was operated by the Public Health Service practically as a Naval base hospital and it saved the construction of a Navy hospital at that place. Much of the bed capacity of the Marine Hospital, Chicago, was devoted to the use of soldiers and sailors.

IV. EXTRA- CANTONMENT ZONE SANITATION.

It was realized from the records of the Civil and Spanish American Wars that large numbers of men became unfit for service on account of the diseases contracted within the near boundaries of the camps. Consequently, upon the declaration of war plans for the sanitation of Extra-Cantonment Zones were perfected and as camp sites were designated the Public Health Service made ready to carry on activities for the prevention of the spread of disease and to properly protect the health of the military forces outside the camp limits. It was realized that in order to accomplish best results cordial cooperation should be extended by all health agencies involved. Consequently, State and local authorities were offered Federal assistance either in an administrative or advisory capacity, knowing that many of the State health authorities and the local health organizations could not meet the emergency suddenly thrust upon them by the influx of the great numbers of military men and industrial workers.

Upon the establishment of a camp service officers were detailed for a rapid sanitary survey of the extra-cantonment area in order to determine the disease problems which were most important, the machinery and funds available to meet the problems, and the amount of additional work necessary to control the situation. It was not known in advance how many camps were to be established, when or where located, nor what force of sanitary engineers or trained personnel would be needed, but it was very apparent that as soon as each camp site was approved disease control and preventive measures should be instituted as soon as possible.

During the period since July, 1917, when the first extra-cantonment zone was established about Camp Zachary Taylor, at Louisville, Ky., up to the end of the fiscal year, June 30, 1919, the primary object and aim of the service was to do everything possible to protect the health of the fighting forces and the civilian population, and incidentally to demonstrate to local and municipal, as well as State authorities, the advantages to be derived from an effective health department.

To properly safeguard the health of the soldier and sailor it was necessary in many instances to install a complete organization, this being done only in those cases where the local authorities were not able to meet the situation caused by a very greatly increased population. It was the policy of the service to cooperate to the utmost extent possible with the local agencies and to only supply sufficient personnel to meet the increased emergency conditions. On the whole the spirit of cooperation on the part of State and local health authorities was most cordial and they have shown great interest and evinced a strong desire to have the extra-cantonment zone in their localities in the best condition possible for their own protection, as well as for the protection of the health of the men in camp. In instances where individual States felt that their own organizations were able to meet the increased needs occasioned by the sudden increase in population no assistance was necessary. In all the extra-cantonment zones where the Public Health Service exercised supervision or control the officer in charge was clothed with State and local health authority in order to properly enforce necessary legislation pertaining to general sanitation. Practically without exception it was found that the health machinery

in the different zones was wholly inadequate to meet the increased demands suddenly imposed, and this deficiency was supplied by the Public Health Service. The aim in each place was to strengthen the health organization by supplying the necessary expert supervision, or in those cases where no organization was present, to supply an organization sufficient to meet the needs of the local situation.

In the beginning of this work there were no Federal funds available for supplying additional personnel, and the American Red Cross, in order to cooperate, created a bureau of sanitary service with an officer of the Public Health Service as director. This bureau was cooperated in the sanitation of the extra- cantonment zones by an allotment of funds upon recommendation of the Surgeon General for the establishment and maintenance of Red Cross sanitary units, the Public Health Service official in charge of the extra-cantonment zone being the director of the unit, and the subordinate personnel consisting of public health nurses, sanitary inspectors, bacteriologists, etc., being supplies by the Red Cross. Funds were also available for transportation and supplies necessary for the operation of these sanitary units. Without the timely assistance which was received from the Red Cross, extra-cantonment zone work would have been greatly hampered and could not have been instituted on an extensive scale until after the passage by Congress of Public Act No. 181, Sixty-fifth Congress, H.R. 12441, as follows:

Interstate quarantine service: For cooperation with State and municipal health authorities in the prevention of the spread of contagious and infectious diseases in interstate traffic, including the sanitation of areas adjoining military and naval reservations and Government industrial plants, in order properly to safeguard the health of the military forces and Government employees, $1,000,000.

It was realized that to properly protect and safeguard the health of the military forces the scope of activities must be very broad and cover many phases of work if disease hazard was to be reduced to a minimum. Consequently, emphasis was directed toward the following lines of endeavor:

Control of communicable diseases:
- [illegible] control and antimalaria work.
- Venereal disease control.
- Epidemiological work.
- Morbidity and mortality reporting.
- Distributing of serum, vaccine, etc.
- School inspection.
- Laboratory work.
- Public health nursing.
- Food, drink, and restaurant supervision.
- Supervision of milk supplies.
- Supervision of water supplies.
- General sanitation:
  - Sewage disposal.
  - Garbage and waste disposal.
  - Fly control.
- Public health education.

CONTROL OF COMMUNICABLE DISEASES.

It was realized in the beginning that one of the important needs in the extra-cantonment zones was the control of communicable diseases. The control of communicable disease was not easy and in order to lessen the possibility of infection many different procedures were necessary. Every effort possible was made to keep a close watch upon the prevalence of disease. Prompt reporting of disease was urged and insisted upon from physicians in all the different zones in order that knowledge of their occurrence would be at hand as soon as possible and the necessary control measures instituted.

Mosquito control and antimalaria work. - In reducing the disease hazard for the soldier and sailor it was realized that special effort would be necessary to combat malaria, in the areas about military canton-

ments, naval reservations, aviation camps, munition plants, shipyards, and other important war industries established throughout the whole of the South. It was realized that the introduction of large forces of laborers from malarious regions would produce new conditions in and around cantonment towns that would make extra precautionary measures more essential for the protection of the civilian, military man, and industrial worker. There was little danger of malaria being contracted within the cantonment reservation as the Sanitary Corps of the Army were prepared to adequately supervise these areas, but as the laborers and men were very likely to spend much of their time in the areas adjacent to the camps, protective measures were necessary for both. The important problem then was to do thorough work rapidly in all localities where military men were present in numbers in potentially malarious districts, as well as to prevent the breeding of mosquitoes and their subsequent flight into the reservations.

In the selection of camp sites the question of malaria prevalence and control of the future incidence of the disease was apparently only one of the many requirements to be considered, and as it was essential to expedite camp construction with all possible speed malaria preventive measures had to proceed accordingly in order to prevent future malaria transmission in that locality. The shortage of efficient labor and the necessity of obtaining funds that could be immediately applied were very important items. In connection with the antimalaria work in extra-cantonment areas the State, county, and city officials in many instances grasped this opportunity for the elimination of malaria and many made liberal contributions for assistance in the work.

However, in some cases it was an extremely difficult and slow process to convince local authorities of the urgent necessity for appropriating immediately funds for this work. At this stage had it not been for the financial assistance received from the American Red Cross, before Federal funds were available, work would have been greatly delayed. However, as a whole the support given by the authorities throughout the Southern States was very encouraging.

Malaria-control measures were carried on usually to an area about 1 mile wide surrounding the reservation, industrial plant, and city or town adjacent, it being deemed sufficient, from experience obtained in the malaria-control work in the Panama Canal Zone that if this strip 1 mile wide were kept free from mosquitoes, those breeding beyond the border would not gain access to the camp, and if the 1 mile-wide area were kept free no malaria mosquitoes would be found in the camp.

The work, which was done, consisted in the drainage of swamps, ponds, wet areas, and seepage outcrops; the proper clearing, training and regrading of natural watercourses; the application of oil at definite periods to all remaining mosquito-breeding areas; and the modification and systematic treatment of shore lines and shallow parts of large lakes and ponds, together with the proper maintenance measures necessary. In order to accomplish this work, the services of skilled engineers with special training and experience in anti-malaria work were necessary.

To attain the desired results many and various local engineering problems had to be met and drainage work done by various methods such as by the use of steam shovels, ditching machines, plows, ex-

plosives, and by hand. Some of the problems may be illustrated by the following examples:

Near Macon, Ga., were six lakes in a large, heavily wooded, swampy area with a soft silt bottom. Its feeder stream was diverted to the Ocmulgee River by means of a ditch dug with a steam shovel. Ditches were extended into the main swamp, which was several miles long and had but little grade. After deepening these ditches to a certain point, pressure on the banks would cause the bottom of the ditch to bulge up. Saplings were used and laid parallel to the banks as a ditch lining or wall to support the banks, stakes being driven to hold the saplings in place. Later, as the ditch banks dried the bottom was cleaned and deepened, the banks drying out and becoming solid enough to hold to grade. As the silt and mud in this swampy area was too soft to dig to advantage a large part of the ditching was done by dynamite. Several weeks after the ditches through the swamp were dug it was well drained and dried. In installing some of the ditches the semiliquid mud was so soft it had to be removed by bailing. After the swamp once became dry no difficulty was experienced in the maintenance.

In the vicinity of Montgomery, Ala., a large part of the ditching was accomplished by means of a ditching plow drawn by mules. The topography being fairly flat and the soil suitable for this means of ditching resulted in many miles of ditches being installed at a very low cost -- about $5 per mile. In this area several ponds and wet areas were drained to a porous gravel subsoil by vertical drains put down by a well-boring outfit.

Surrounding the cantonment at Jacksonville, Fla., is a sandy formation that will stand only on a very flat slope. The ditching

there was made difficult by the presence of the roots of the palm plant, which are several inches in diameter and from which radiate small roots lying so close together that removal of the main root was very difficult. A large part of the ditching work there was done by the use of dynamite. In addition to ditching it was necessary to remove much tightly packed water hyacinths from one of the branches of the St. Johns River in order to eliminate mosquito breeding from the covered surface.

About the cantonment at Hattiesburg, Miss., are hills of sandy formations, but in the ravines are narrow areas of wet, siltlike formations, 6 to 10 feet deep penetrated by heavy masses of large roots. It was found too slow and expensive to excavate ditches by hand in such places, but drainage was accomplished by blasting center ditches and installing side seepage ditches where necessary.

Wilmington, N. C., had an unusual problem. Close to and even within the town limits were extensive abandoned rice fields subject to overflow and generally wet. It was necessary to repair or reconstruct dikes and use tidal gates to prevent mosquito breeding.

Around Chattanooga, Tenn., elimination of anopheles-breeding area was accomplished by draining ponds to holes dug down to the limestone formation, where it was absorbed. Breeding in the large spring and lake near Camp Oglethorpe was controlled by the use of a submarine saw to remove the aquatic vegetation that furnished protection for anopheles larvae.

The problem near the aviation field at Millington, Tenn., was the removal of drift in several miles of a deep creek bed with a very low grade. Many of the collections of drift and log jams were 6 to 18 feet

high and 50 to 100 or more feet long, containing many fallen trees and logs as much as 30 feet or more in width. Removal of the jams and drainage of the stream was expensive, slow, and tedious work, but subsequently only three cases malaria were reported in the town where during the previous years records show that 50 per cent of the sickness was due to malaria.

At the aviation field at Lonoke, Ark., as well as at Lake Charles, La., rice fields, which are probably the most prolific mosquito-breeding areas, are located within flight range of the cantonment and control was by no means easy.

One of the most efficient demonstrations was carried on along the Mississippi Gulf coast from Biloxi to Pass Christian, a distance of about 27 miles. The topography of this district is generally extremely flat and swampy, inundated depressions, most often parallel to the shore of Mississippi Sound, extending uninterruptedly for miles in an east and west direction and occurring in numbers as high as 14 or 15 in a strip a mile wide. The soil is practically pure sand with surface humus 15 to 30 inches deep except on the ridges. Most of the swamps contain a heavy root growth of palmetto, cypress, gum, and bay, which made drainage a very difficult problem. However, as a result of the malaria-control measures instituted along this strip, and due to the substantial financial support given by local and county authorities, the area was made practically free from malaria. It is now the longest known area of the southern seacoast which is practically free from the malaria-conveying mosquito and without doubt will soon pay well as a financial investment.

In many places where it was not practicable to drain all mosquito-

breeding areas it was necessary to control breeding by the use of oil applied to the surface of streams, pools, and potential breeding places. A mixture of kerosene and crude oil was found most efficacious and was applied to the water surface by the use of various methods - knapsack-spray pumps, by which the operator carried a spray pump strapped to his back fitted with a hose and nozzle which would throw a fine spray of oil. This method was particularly advantageous where stream edges could not be cleared, where there was no current, or where the current would not carry oil to the margin. The drip can was found very efficacious in slowly running streams, the oil being placed in a can and the dripping gauge so regulated as to allow the necessary amount of oil to pass out.

Still another method which proved very good was the use of oil-soaked sawdust or waste placed on the surface of the water or anchored beneath the surface.

Where oiling was used as a measure of malaria control regular applications were necessary at certain specified times, and in order to keep a check upon the effectiveness of antimalaria operations trained personnel were detailed to completely cover the flight zone once a week to determine whether the breeding of mosquitoes was controlled. In this way the whole area was at all times under supervision.

Excellent results were accomplished by the Army Sanitary Corps within the military reservations. Most cordial relations existed between that corps, whose duty it was to prevent mosquito production within the military cantonment, and the officers of the Public Health Service, who directed measures in the 1-mile zone surrounding the reservation as well as in the cantonment town and the area surrounding

the town. In addition, it was frequently necessary that the Public Health Service undertake similar control operations about distant amusement parks and other areas where military men and industrial employees congregated.

A further method of control which was instituted in many of the zones was the seeding of ponds with larvae-eating top minnows. Assistance was rendered by the Bureau of Fisheries in detailing their experts to several of the zones to properly supervise this seeding.

A very interesting and instructive piece of work was done in the extra-contonment zone about the aviation field at Lonoke, Ark., in which three of the four general methods of malaria-control measures were instituted and enforced. The control of mosquito breeding was carried on as in other zones; preventing the access of mosquitoes to well people was carried out by requiring all buildings within the zone to be properly screened, no entertainments or public gatherings being allowed in other than screened inclosures, hence all open-air night gatherings being eliminated; preventing the infection of mosquitoes, or human control, consisted in the detection and sterilization by quinine of human carriers of the malaria parasite, this being determined by blood examination. The fourth method, immunization against malaria was not instituted. The results of malaria-control work in this zone are very interesting when the mortality and history incidence in 1917 is compared with mortality and zone reports in 1918. In 1917 four deaths from malaria occurred within the controlled area, giving the death rate of 160 per, 100,000. During 1918 no deaths occurred. The history incidence in 1917 showed that 29 per cent, or 52 persons suffered from the disease, whereas in 1918 only one case occurred.

The results accomplished in antimalarial work in the extra-cantonment zones extending from Massachusetts to Texas and from Louisville, Ky., to Jacksonville, Fla., covering 40 areas in 15 states, were not the absolute prevention of malaria, but certainly made the problem one of no consequence for the military authorities and for the civilian population within the controlled areas. As shown in table No. 2, following, the total area of over 1,227 square miles was under supervision, giving protection to an average total of 1,140,800 military men at all times, the individual men being constantly changed as well as to a total of 3,757,848 of the civilian population.

Where cantonments were located in notoriously malarious sections very little malaria was contracted by enlisted men and the malaria sick rate among enlisted men in camp, if from the South, was very much lower than had they stayed at home. When the Army and Navy sick-rate figures are published it will undoubtedly be shown that, due to the proper mosquito-control measures, practically very little, and in many instances, no malaria has been contracted at camps located in regions noted for malaria. In many of the extra-cantonment zones antimalaria work was in progress for two seasons, and the consensus of opinion of the results of this work can be well shown by the following statements based upon reports received from local physicians and supplied by medical officers in charge of the extra-cantonment zones.

The great volume of work which was done would not have been possible had the individual communities, towns, and local organizations not contributed liberally for assisting and extending antimalarial activities. The railroad corporations gave strong support and willingly did much drainage work as was requested. The support given by the public

of the South and the officials who represent them, even in the relatively poor and sparsely settled districts, deserve highest commendation and approximately half of the extra-cantonment towns of the South have planned to continue mosquito-control measures after the withdrawal of service officers.

As a result of the demonstration, one State legislature, for the first time in the history of this county, appropriated funds for carrying on antimalaria-control measures in the State. This should be followed in the next few years by all the States throughout the South and thus be a big step toward the prevention of the annual national loss due to malaria.

Table No.2, on page gives a summary showing the number of square miles under supervision in and around each extra-cantonment area, the number of miles of ditches dug, streams rechanneled, drained, etc., as well as the total amount of oil used as a larvacide. To carry out this work there was in the employ of the service 50 sanitary engineers and an average of 100 scientific assistants, 225 sanitary inspectors, 500 foremen, and 3,000 laborers.

Venereal disease control work was carried on in all the extra-cantonment zones. Report of the venereal disease activities is taken up under the Division of Venereal Diseases.

MORBIDITY REPORTS:

Without an accurate knowledge of the occurrence and location of communicable disease it was obviously impossible to put into effect efficient measures for control.

As soon as a disease was reported an inspector or public health nurse was detailed to make an investigation in order to collect all

available epidemiological data and obtain the knowledge, if possible of when, where, and under what conditions the disease was contracted. If necessary, isolation and quarantine measures were enforced and the house placarded. Diagnosis of the disease was confirmed by laboratory examination where indicated, and in conditions such as diphtheria, meningitis, etc., a laboratory check was kept on those coming in contact with the patient in order to determine whether or not they were carriers and harboring the germ of the disease.

Special emphasis was placed upon morbidity reporting as the available records in most of the extra-cantonment zones showed that in practically all cases the mortality report from any specific disease exceeded the morbidity report of the same disease. As a result of this intensive work most of the doctors soon became very prompt in reporting disease, and consequently a much better check was kept on the incidence. Reciprocal notification was maintained with the military authorities, and all assistance possible rendered whenever needed. Universal inoculation against typhoid fever and vaccination against smallpox was urged with the result that available records from 34 extra-cantonment zones show that 435,066 people were inoculated against typhoid fever and 260,338 vaccinated against smallpox. Table 3, on page , shows the number of people inoculated at the different zones.

Effort was made to exercise supervision over schools in order to maintain the closest possible touch on the incidence of disease. Routine physical examinations of the students were made in as many places as possible, and in 18 zones 89,277 school children were examined. Cooperation was usually extended by the principals of the various schools

to the extent of furnishing the medical officer on duty in the extra-cantonment zone with daily list of absentees due to sickness. These lists were immediately checked and nurses and doctors sent out to investigate the condition. In many of the zones where vaccination of the school children was not already enforced, ordinances to that effect were passed by the local authorities and practically without exception all school children in extra-cantonment zones were vaccinated against smallpox and a goodly percentage against typhoid fever.

In order to control communicable diseases as effectively as was done it was necessary in many cases to install a complete laboratory and to furnish a bacteriologist for diagnoses. In some zones laboratories were already present, but the service rendered necessary assistance by supplying bacteriologists. Reports from the laboratories in 24 zones show that a total of 195, 567 routine laboratory examinations were made. The laboratories were of very great assistance in the determination of carriers in those who had been exposed to infection and undoubtedly through the efficient laboratory diagnosis and subsequent isolation or quarantine of the carriers prevented the spread of infection.

There were occasional epidemics of individual diseases, such as measles, scarlet fever, diphtheria, meningitis, smallpox, and typhoid fever, none of which became more than of local importance, the only epidemic of alarming proportions being that of influenza, which spread over the whole country and the report of which is taken up separately. During the influenza epidemic, however, all extra-cantonment zone personnel, including service officers, doctors and nurses on duty, were directed to devote all their energies toward combating the disease and giving relief to the sufferers.

PUBLIC HEALTH NURSING:

Another very important phase of extra-cantonment zone work and one which did a great deal for the prevention and control of disease was public health nursing. In the beginning all nurses were detailed to the directors of sanitary units by the American Red Cross, but subsequently this number was increased by the service employing many local nurses. A further increase of nursing personnel was brought about by the coordination of all nursing agencies within the individual city or town in order that greater efficiency might be obtained and to prevent duplication of effort. This system, where inaugurated, proved very efficacious, as there was one directing head instead of a head for each previously existing organization.

The duty of the public health nurse was to investigate all cases of communicable disease, to instruct members of the household in the proper care of patients in order to prevent the spread of the disease to other members of the family, to give instructions in the proper methods of nursing, disposition to be made of excreta, the use of disinfectants, etc. In addition to visiting cases of communicable disease the nurse assisted in school-inspection work and in follow-up visits of the absentees from school in order to determine if the cause of absence was due to communicable disease. In carrying out public health nursing it oftentimes happened that the nurses found and reported many cases of communicable disease, they being able to get closer to the families and being informed of cases of sickness in the neighborhood which had not been seen by a doctor.

Table No. 4 following which does not give the total number of visits and revisits made in many of the zones, will tend to give some idea of the amount of work which they did.

FOOD, DRINK, AND RESTAURANT SUPERVISION:

Prior to the establishment of camps near the various extra-cantonment zone towns, food and restaurant supervision was carried on by the local authorities. In some instances excellent results were being accomplished, but in the great majority, the accomplishment and results left much to be desired in ordinary times.

Upon the establishment of the camps, with the consequent increase in population, there was naturally a demand for a great many more food and drink establishments, which the local authorities with their limited means could not properly supervise. Included in the number of new food and drink establishments were also to be found many mushroomlike establishments, especially near the borders of the camp, of primitive construction, with few facilities and no regard for ordinary cleanliness. It was therefore realized that a special effort should be made to insure that all food and drink supply establishments be brought under rigid supervision. The local inspection force was therefore increased by service personnel and a system of inspection and certification inaugurated in practically all of the extra-cantonment zones as the result of an order sent out from the Surgeon General's Office of the Army under date of December 3, 1917, directing officers in command of the different camps to cooperate in every way possible with Public Health Service officials who were charged with the sanitation of the extra-cantonment zones. Orders were usually issued by the commanding officer allowing no men in uniform to patronize a place not certified by Public Health Service officials. Where necessary this order was enforced by placing military police on guard in front of establishments not certified in order to prevent soldiers from patronizing them. The city organizations cooperated

to the extent of passing modern ordinances and regulations governing the operation of these establishments.

Inspection of all places within the zone where food or drink was prepared or offered for sale were made and instructions given for the necessary improvements to be made. All employees of such places were required to present a certificate or submit to a physical examination in order to determine whether or not they were suffering from communicable disease. Vaccination against smallpox and typhoid fever was also required. Reinspections of such places were made at regular intervals and their sanitary score kept up. Most excellent results were accomplished in this phase of the work, due to the cooperation extended by the local authorities and the Army officials. It was oftentimes slow and tedious, but as as result of the gradual education of the proprietors of such establishments, they usually in the end appreciated the advantage to be derived by maintaining their places in a sanitary condition.

The inspection and supervision of food and drink establishments as carried on under this heading included hotels, restaurants, cafes, grocery stores, delicatessens, bakeries, candy kitchens, and such like. Special emphasis was placed upon the establishments being screened; all food covered and protected from flies, dust, and dirt; proper sterilization of the utensils, glasses, spoons, etc.; ample washing and toilet facilities; necessary ventilation and general cleanliness.

It is impossible to tabulate results of the many and various kinds of improvements made, nor is it possible to give any estimate of the expenditures necessary, but the results of the improvements will continue to be active for many years to come.

SUPERVISION OF MILK SUPPLY:

Since milk is one of the very important sources of food, being used universally, and also a frequent medium for the spread of acute infectious diseases, it was necessary to exercise rigid supervision over the supply. About a majority of the camps throughout the South the milk is supplied by local producers and dealers; it very rarely coming from a distance greater than 75 miles. Taken as a whole, the dairies were not up to an approved standard and much supervision along educative and inspection lines was necessary. Cordial cooperation was extended by the Bureau of Animal Industry, Department of Agriculture, in detailing milk and dairy experts to the service for assistance. Specially trained men in milk and dairy work were also supplied by the American Red Cross. Necessary legislation was usually secured by the passage of modern ordinances governing the sale and production of milk and milk products, which resulted in great improvement of the supply.

Special emphasis was laid upon the sanitary condition of the dairies. It was demanded that the barns and milk houses be remodeled or rebuilt to meet an approved standard. A sanitary method of excreta disposal was instituted and general sanitary conditions bettered. A physical examination of all employees and milkers, together with vaccination against smallpox and typhoid fever, was also required. In many cases where tuberculin testing of cattle was not already required this was instituted.

Many improvements in the methods of producing milk were inaugurated, special emphasis being placed upon -- 1, all udders being thoroughly cleaned before milking; 2, all milking done with dry hands or modern mechanical milking apparatus; 3, the use of the small top milk pail; 4, properly straining the milk; 5, proper cooling; 6, proper sterilization

of utensils; 7, prompt delivery.

The importance of properly supervised pasteurization was made plain to the producers and handlers of milk, and in all instances possible this was insisted upon, which resulted in the establishment of many new pasteurizing plants and the remodeling and enlarging of previously existing ones. It was urged that all restaurants, soda fountains, cafes, hotels, etc., use pasteurized milk delivered in original containers.

SUPERVISION OF WATER SUPPLIES:

In view of the fact that the water supply of most of the cities in which extra-cantonment zone headquarters were located was also the supply for camps adjacent to the city, it was deemed advisable and very essential to exercise some supervision over these supplies. In many of the zones local officials requested the service to supervise their water supplies on account of the fact that the superintendents, engineers, etc., had in many cases gone into the Army. It was found necessary for officers of the service to make field surveys of watersheds, to superintend the operation of filter plants, and to see that the chemical treatment of the water was efficient.

In different extra-cantonment zones all varieties of water supplies were encountered, some of the zones having deep wells, some flowing artesian wells, some creek or river water, and others impounding reservoirs.

Water from the deep wells and artesian wells was usually of good quality, supervision being necessary only to prevent pollution by broken mains, faulty check valves in subsidiary supplies for fire purposes, leaky reservoirs, etc.

Many of the towns resorted to the use of creeks and rivers for their water supply, some of them having modern filter plants, but others only having settling basins and depending upon the use of chemicals for purification. In all zones it was urged that the cities using creek or river water not already having a modern water purification plant install one.

There were several of the zones which made use of an impounding reservoir, the water being collected from a watershed, usually municipally owned or supervised. Service supervision in these cases included a thorough sanitary survey of the whole watershed, and if sanitary nuisances were found their immediate abatement ordered and enforced. If the watershed was populated each home was required to install some approved method for sanitary disposal of human excreta.

A constant laboratory check was at all times kept on the bacteriological content of the supply. This, with the frequent field surveys of the watersheds and the intimate knowledge of the efficiency of the individual units of the plants, resulted in a constant index of the character of the water used being kept. In addition, there was a rigid check upon the sanitary purity of the water as delivered to the camps by the military authorities.

SEWAGE DISPOSAL:

It was realized that the inspection and supervision of sewage-disposal methods were very necessary. In those cases where supervision was lacking the service supplied trained personnel for this phase of the work. The extra-cantonment area was divided into urban and rural districts, the urban into the sewered and unsewered areas. Surveys were made in order to determine the existing conditions. This survey included

data on the number of sewered homes in the sewered area and the number of homes not sewered, together with data on the number of homes in unsewered area which were not provided with a sanitary method of disposal of human excreta. Most of the cities previously had ordinances requiring all buildings within the sewered area to be connected to sewers where water and sewer mains were available, but regulations relative to unsewered districts were in the majority of instances extremely lax and inefficient. The service policy in these cases was to encourage the enforcement of existing ordinances and to insist upon the passage of ordinances demanding that homes outside of sewered areas be compelled to install a sanitary privy of some kind. The system recommended and the one which most of the ordinances called for was the installation of the box and can sanitary privy and the operation by the city of a scavenger service and disposal stations. Most of the towns and cities passed ordinances to this effect, and the results were very gratifying, both in the operation of the system and in the lessening of typhoid fever and other intestinal diseases.

In the rural areas surrounding the camps it was realized that the individual homes should be provided with some sanitation method for the disposal of human excreta. Initial surveys showed conditions to be very primitive in many instances, and it was finally decided that the most satisfactory type of privy that could be installed was the double compartment concrete vault. These vaults were installed by a co-operative plan, the county or rural district supplying half the funds for the supervision and labor and the service the other half, the individual for whom work was to be done supplying the necessary materials for the construction of the vault. As a result of activities along

these lines, double compartment concrete privy vaults were installed at practically every home within the 5-mile zone surrounding a great many of the camps.

EDUCATION:

In extra-cantonment zone sanitation great stress was put upon public health education. Lectures upon health subjects illustrated by slides and motion pictures were delivered. Hearty cooperation was usually extended by the local newspapers in giving publicity to the work, what it meant for the community, and the results accomplished. Thousands and thousands of public health pamphlets and bulletins upon subjects pertaining to health and sanitation were distributed and everything possible done to keep before the minds of the public the great importance and benefits to be derived from an active, alert, modern health department.

To carry out extra-cantonment zone work and the disease-control measures as outline above, service supervision was maintained in 51 zones, the town most adjacent to the camp usually being selected as service headquarters and the extra-cantonment zone bearing the name of the town instead of the camp. Table no. 1, following, shows the areas under supervision in the different extra-cantonment zones, and Table No. 5 the expenditures made for carrying on the work as incurred jointly by the Public Health Service, American Red Cross, and local agencies.

As was stated in the beginning, aside from the protection of the health of the military, naval and industrial forces, one of the aims of the service was to assist in building up local health organizations and to demonstrate the advantages to be derived from a full-time and efficient organization. The work done by the Public Health Service in cooperation with State and local health authorities in the 51 extra-cantonment zones

was unquestionably the greatest public health demonstration that this country has ever seen, and demonstrated so clearly the advantages to be derived from a well-organized and fully equipped health department that when service activities were concluded 22 towns and cities in which the service was operating created and made provision for a complete organization with full-time health officials, 17 among having full-time organizations when service activities were instituted.

V. ACTIVITIES OF THE PUBLIC HEALTH SERVICE IN COMBATING THE INFLUENZA EPIDEMIC

During the summer of 1918 reports appeared in the press from time to time showing the great prevalence of the so-called Spanish influenza. The disease was reported to the Public Health Service from Switzerland, France, Great Britian, and elsewhere. According to press dispatches, 8,000,000 persons suffered from the disease in Spain alone.

This bureau realized that the United States would be affected by the epidemic and that it was practically impossible to prevent the entrance of influenza on account of its almost world-wide nature. In order, however, to do everything possible the following circular was issued:

Medical Officers in Charge, United States Quarantine Stations:

Sirs: You are especially cautioned to be on the alert in the inspection of vessels from European ports so as to detect any cases of the so-called Spanish influenza. If any such disease is discovered, vessels should not be released from quarantine until after the local health authorities have been notified in accordance with paragraph 68, United States Quarantine Regulations.

Owing to disordered conditions in European countries, the bureau has no authoritative information as to the nature of the disease or its prevalence. It appears, however, to be an infection due to the B. influenza with predilection to lung involvement.

If any cases are discovered upon arrival of a vessel, they should be reported to the local health authorities and the necessary cooperation extended, including fumigation of living quarters with

sulphur dioxide, letting personal effects remain in compartments during the fumigation.

This circular does not contemplate consideration of cases of ordinary pneumonia or respiratory infections, but only those infections involving a considerable number of the crew and which appear to be highly communicable and suggestive of epidemic influenza.

Respectfully,

Rupert Blue, Surgeon General.

Influenza was not a quarantinable disease, but it was hoped in this way to detect any cases that might be brought into the country, and by this cooperation with the local authorities to isolate the cases so that they might not prove a menace to the general public.

The disease was soon reported, however, and early in September was present in New England to a considerable extent. On September 18 telegrams were sent to all State health officers asking them for information concerning the prevalence of the disease in their respective States. Replies to this request showed that the disease was present in New England and along the coast to the Virginia Capes and in addition there were a few foci in the States east of the Mississippi.

In order to do everything possible in the way of supplying information concerning the disease, a pamphlet was prepared by the bureau giving the facts as known about its spread, methods of prevention, etc. This was widely distributed, 6,000,000 copies being printed. Posters were printed and distributed through the aid of the Post Office Department, Federal Railroad Administration, and the Red Cross. A newspaper article was prepared and distributed to 10,000 newspapers, with the

request that it be published. In these various ways practically everything known concerning influenza that could be of use to the laity was spread broadcast over the country.

On September 26 the State health officer of Massachusetts requested immediate aid from the Public Health Service, as the disease was spreading very rapidly over the entire State and he was unable to furnish doctors and nurses to the stricken communities. Orders were issued immediately to a number of commissioned officers to proceed to Massachusetts for duty in cooperation with the State authorities. The officer in charge notified the bureau directly upon his arrival, after making a preliminary survey of the situation, as to just what help was needed.

There was a great shortage of both doctors and nurses, not only in Massachusetts but throughout the country, as so many were needed for military purposes. Obviously the service could not furnish the medical assistance necessary, so temporary men had to be employed. There was no appropriation available whereby these men could be paid, but Congress immediately passed the following resolution:

(Public Resolution-No.42 - 65th Congress.)
(H. J. Res. 323.)
Joint resolution to aid in combating "Spanish influenza" and other communicable diseases.

Resolved by the Senate and House of Representatives of the United States of America in Congress assembled, That to enable the Public Health Service to combat and supress "Spanish influenza" and other communicable diseases by aiding State and local board of health or otherwise, including pay and allowances of medical and sanitary personnel, medical and hospital supplies, printing, clerical services, and rent in the District of Columbia and elsewhere, transportation, freight, and such other expenses as may be necessary, there is appropriated , out of any money in the Treasury not otherwise appropriated, $1,000,000, to be available until June 30, 1919.

Sec. 2. That the Secretary of War, the Secretary of the Navy, and the Secretary of the Treasury are authorized and directed, respectively, to utilize jointly the personnel and facilities of the Medical Department of the Army, the Medical Department of the Navy, and the Public Health Service, so far as possible, in aiding to combat and suppress the said

diseases.
Approved, October 1, 1918.

The funds being provided, it then became a question as to where the personnel could be found. The American Medical Association and the Volunteer Medical Service Corps were appealed to and immediately they supplied lists of men in the various States who might be secured for influenza duty. In addition, the Journal of the American Medical Association, through its columns, appealed to the profession to apply for duty with the service in combating the epidemic. Telegrams were sent to the men whose names were furnished by the above organizations asking if they would accept appointment as acting assistant surgeons with compensation at the rate of $200 per month, allowance of $4 per diem in lieu of subsistence, and transportation expenses.

Then came the problem of nursing personnel, which was more difficult to find than the medical personnel. The nursing division of the Red Cross asked that the service not attempt to recruit nurses, as they were supplying the needs of the Army and Navy and, so far as possible, the civilian requirements, and that any other recruiting agency would only serve to further complicate a very difficult undertaking. They agreed, however, to supply nurses as far as possible, but only upon the approval of the Surgeon General of the Public Health Service.

Needless to say it was impossible to provide enough doctors and nurses to treat the individual cases. This was done wherever possible, and the personnel worked unceasingly to treat the disease, but probably the most important thing that was done was to organize the local resources in advance of the height of the epidemic. Plans were made for opening of emergency hospitals as needed, volunteer nurses were organized,

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emergency kitchens established, etc., and in this way many communities were able to take care of themselves when the epidemic was well established.

The epidemic was increasing daily and calls for assistance began to come in from many sections. Obviously one office could not attempt to provide help for the whole country, so it was decided to appoint a director for each State. In many instances the State health officer was asked if he would accept appointment as a field director and as such direct the movements of the service personnel. In other instances an officer of the service was detailed to the State to cooperate with the health officer in directin relief. These officers were put on duty in various States October 15 and were given complete instructions. All requests for aid were made direct to the officer in charge in the respective State, who was able to judge the merits of the different requests and so distribute his personnel as to get the best results.

Each State made daily reports by telegraph of the progress of the epidemic and the need for aid, and in this way the bureau was able to see the whole country and thus know where personnel could be shifted and where it would be of greatest use.

The Red Cross also placed a representative in each State, who was to look after its affairs. This officer cooperated with the State health officer and the Service representative, thereby avoiding duplication of effort and giving the best results possible.

The Commissioner of Indian Affairs reported on October 14 that the Indians on the various reservations were being attacked by the disease and requested that steps be taken to give him some assistance. Accordingly, he was made a field director and given the same authority as the directors in the various States. As a result a large number of doctors

and nurses were appointed for duty with the Indians.

The latter part of October the disease appeared in Alaska and the governor requested aid. He was authorized to appoint certain physicians and to incur expenditures for medical supplies, etc. Conditions soon became more serious, however, and as sufficient personnel could not be secured in Alaska, a Service officer on duty in the State of Washington was ordered to secure doctors and nurses and prepare for a trip to the Territory. A request was made to the Navy Department for a vessel to carry the relief party, and immediately the collier Brutus was fitted out for the trip. Some of the party were able to go ahead of the Brutus, so they met her in Alaska. After reaching Juneau the party was divided and by the use of small boats visited all the Islands that were affected. The Red Cross rendered very valuable assistance in Alaska, and all its Chapters did everything possible to cooperate with the Service representatives.

The disease appeared in the District of Columbia early in October and almost at once the condition became very serious. Washington, of course, was very greatly crowded and new persons were coming in each day, thus making the congestion greater all the time. Obviously it was very important that nothing interfere with the work here for it was absolutely necessary to the prosecution of the war. The District health officer and representatives of the War Department requested that the service aid them in handling the epidemic and accordingly an officer was ordered to Washington immediately to cooperate with the local authorities in handling the epidemic. The Surgeon General of the Navy offered the services of 40 medical officers who were immediately available. An emergency hospital was opened with a capacity of 500

beds, this hospital being moved later to a smaller building having a capacity of about 100 patients. This latter hospital was in practically continuous operation from October until March 1, when it was discontinued.

During the epidemic 64 commissioned officers were on influenza duty, most of whom were giving their entire time to it. In addition to the commissioned officers, many temporary appointments were made. One thousand and eighty-five doctors were employed, 703 nurses and nurses' assistants, and 323 miscellaneous persons. This personnel was engaged entirely for influenza duty and gave their whole time to the work.

When the list of personnel is arranged according to States, the number is much larger, for a great many of these people were on duty and in two and some in three States. As far as possible the personnel was shifted from one State to another as conditions improved in one area. In this way a small force could be trained sooner and could be more economically handled.

The clerical work necessary in handling such a force was very great, indeed, inasmuch as it all had to be done in such a short time. The force at the bureau was greatly increased and at a time when trained clerks were not so easily obtained. Practically none could be secured who were familiar with Department forms, etc., thus making the work even more difficult.

When the payrolls and vouchers for other expenses began to come in the work was still further increased. On account of the urgent nature of the work many of the nominations, reports, etc., were necessarily made by telegraph with consequent inaccuracies. Many of the men had had no previous experience with Government forms and where possible an officer of the service was detailed to instruct them

in their preparation. This was a great help and aided materially in expediting the work.

The disbursing and accounting for $1,000,000 in amounts ranging from $1 to $5,000 is no small undertaking and requires considerable personnel. But considering all the obstacles to be overcome and the difficulty, amounting almost to an impossibility, of securing a trained clerical force, the work has been done with very little delay.

Had there been a reserve corps for the service, as had been advocated and passed by the Senate, the work would have been far easier, and perhaps better done. The bill for a reserve was in the House, where it had been for a year with no action having been taken. After influenza had become epidemic over practically the entire country this resolution was brought out of the committee and favorably acted upon by the House. This provided the reserve corps, but it came too late to be of any use in influenza.

By December 1 the epidemic had subsided to a large extent and activities were greatly curtailed. Requests still came in from various parts of the country and investigations were made in each instance and aid given where necessary. It was realised that in numerous instances attempts were made to retain physicians and nurses after the epidemic had subsided. Many communities were without sufficient medical men and naturally were loath to see the doctors leave. This was especially true of the coal-mining regions, of Pennsylvania. Many of the companies were without physicians, as the men had entered the Army and they wished to retain doctors for their ordinary work. Of course this was not the purpose of this special appropriation and every effort was made to supply doctors only where epidemic conditions prevailed. The appropriation

was so far exhausted that no expenditures were chargeable to it after February 15, and the men in the field were advised accordingly.

In addition to supplying doctors and nurses where needed, the service was called upon for advice on various questions of quarantine, etc. These requests were invariably referred to the State health officer when they involved only intrastate matters. A few instances arose where interstate traffic was concerned and in those cases, of course, the service was very greatly interested. In such cases, however, after a conference with the local and State health authorities, the questions were satisfactorily settled.

Through the cooperation of Federal and State authorities, it is felt that a great deal of good was accomplished. Aid was supplied where it would have been impossible otherwise. The States in many instances did not have funds which could be used for influenza, and the legislatures were not in session, so funds could not be made available. Undoubtedly many lives were saved and much suffering avoided by the combined efforts of the State and local authorities, the Red Cross, and the members of the Volunteer Medical Service Corps acting under the direction of the Public Health Service.

VI. SANITARY SUPERVISION AND MEDICAL RELIEF FOR MOBILIZED INDUSTRIAL FORCES

When the United States entered the World War, the Public Health Service already had an excellent background of previous study and investigation in the field of industrial hygiene because of general authority contained in the act of August 14, 1912 empowering it to study and investigate the diseases of man. As a result of the passage of this act, considerable work had already been done in the study of occupational diseases. While a part of the activities of the Public Health Service during the World War were directly the outgrowth of the situation, the need for a program in industrial sanitation was foreseen before the active participation of the United States. This need, among others, was made the subject of official recommendations in the report of the Board of Officers referred to above.

Therefore, when the United States entered the war, it was determined, by the Public Health Service, to conduct such industrial surveys and industrial research at once, as would be of immediate practical benefit in maintaining hygienic conditions in war industries, and further, to develop a program of industrial hygiene and industrial community sanitation, particularly applicable to areas in which war industries were concentrated, as funds and personnel became available for this work. However, the war work of the United States Public Health Service in industrial hygiene was much handicapped at the outset by lack of personnel and funds. Later on, it was possible to increase the scope of the work in industrial hygiene so that on the whole, an important contribution, which doubtless would have continued to increase had the war

continued longer, was made to the maintenance of industrial efficiency.

Perhaps at this point it may be well to discuss briefly the limitations in regard to the prosecution of work in industrial hygiene under which the Public Health Service suffered at the beginning of the war which hindered greatly the development of a systematic program of work such as it had conceived and show how, as the war proceeded, these limitations were gradually in the process of removal so that, had the war continued longer, there can be no doubt that the Public Health Service would have rendered in full measure all the service in this field which the Federal health agency should supply.

While there was a keen appreciation on the part of the Public Health Service of the fundamental importance of the protection of the health of workers in war industries, the only legislative authority for this work which it possessed at the time of the declaration of war was a general authority contained in the act of August 4, 1914, under which the Public Health Service might investigate the diseases of man. The act of February 15, 1893 which gave the Public Health Service broad authority to cooperate with state and local boards of health and enforce such measures as might be needed to prevent the spread of disease through interstate channels did not apply here because of the limitation of this authority to contagious and infectious diseases. As a result we find the Public Health Service at the outset of the war with authority to investigate industrial diseases but without power to cooperate with state and local agencies (in this case, state industrial commissions or departments of factory inspection) except insofar as industrial hazards might be of an infectious or contagious character. These, while important, are as a rule only incidental to other industrial hazards which, for the most part, are

dependent upon such conditions as fumes and dust, defective illumination, defective ventilation, exposure to extremes of cold and heat, over-fatigue, and industrial poisons.

Yet the need for industrial health supervision was keenly appreciated by federal agencies other than the Public Health Service. Thus, when the Emergency Fleet Corporation built ship yards and took over the general construction of shipping, it included in its plans, provisions for the health supervision of the shipyard workers. The Department of Labor quickly obtained legislative authority for the establishment of a Working Conditions Service. Obviously, the supervision of health conditions in industry was to be an important part of the duties of this Service. Again, the Industrial Service Section of the Production Division of the Ordnance Department of the Army which had supervision over the production under government contracts of material for the Federal Government was well aware of the importance of maintaining adequate medical supervision and sanitary conditions in the various establishments producing under these contracts, and had in contemplation, the steps for securing the proper health supervision of the industrial communities concerned. Here then a situation was rapidly arising which tended to conflicts of authority, duplication of work, and diffusion of effort, while, at the same time, it threatened to impair the useful development of the one Government health agency which by its previous experience, its training, its adequate grasp of the entire field of the public health was better fitted than any other to supervise and coordinate the entire civil health work of the Federal Government into one comprehensive and effective service which would, at a minimum cost, accomplish all it was meant to do.

However, with the passage of the Overman Act, the Public Health Service initiated action to bring all federal civil health functions under the supervision and control of the Public Health Service; see executive order quoted on page 37. The promulgation of this executive order very much simplified the supervision and control of federal civil public health matters. The Industrial Service Section of the Ordnance Department requested the Public Health Service to furnish the necessary industrial health service; the Working Conditions Service of the Department of Labor made the same request and the Public Health Service took over the health supervision of the workers in the ship yard industry and assumed charge of the emergency medical and surgical relief of the employees of the Bureau of War Risk Insurance in Washington, approximately 16,000 in number. In addition to these administrative activities, the Public Health Service also maintained a cooperative and consulting service with the Woman in Industry Service, the Children's Bureau, the Bureau of Labor Statistics, the United States Housing Corporation, the Bureau of Standards, and the Federal Board for Vocational Education. Services were also rendered to the Bureau of Engraving and Printing in the study of the amyl acetate lacquer hazard, and to the Post Office Department in a study of the sanitation of the post office quarters in the Grand Central Station in New York.

From the administrative standpoint, the situation was improved by moving the headquarters of the field office of industrial hygiene and sanitation formerly situated at Pittsburgh, to Washington, D.C., suitable office quarters being provided by the Working Conditions Service in the Labor Department. In order properly to conduct the work in the field, district offices were established at suitable

points situated at New York, Philadelphia, Pittsburgh, Cleveland, St. Louis, and Chicago. The duties of each field office were to maintain supervision over the war industries in their particular field. The personnel consisted of medical and engineering officers under the supervision of the district director.

An indication of the growth of the work in industrial hygiene may be obtained by the following. At the outset of the war, there were assigned to the work of industrial hygiene and mine sanitation, eight medical officers, five scientific assistants, and one assistant physicist. By the middle of 1918 there were engaged in these duties, fifty-eight medical officers, consulting hygienists, scientific assistants, physicists and other scientific personnel.

As it was, the work at the beginning had to be confined to such surveys and investigations as it was practicable to make; later on, effective demonstration in the sanitation in industrial areas, was made. The war work of the Public Health Service in industrial hygiene can be conveniently divided into two categories:

1. Surveys and Investigations.
2. Health Supervision in Industrial Areas.

SURVEYS AND INVESTIGATIONS

Trinitrotoluene Poisoning. The World War brought trinitrotoluene into prominence as a high explosive. The European experience had already shown that this substance was highly poisonous and that its manufacture, and especially the loading of shells, might result in serious and sometimes fatal poisoning unless the proper precautions were taken. The occurrence of such cases of poisoning had already been a matter of serious concern to the British Government. The participation, particular-

ly if long continued, of the United States in the war could not fail, not only to throw additional burdens on the explosive and shell-loading plants already in existence, but would also lead to the hurried erection of others so that it became important to pay particular attention to the existing situation in regard to the trinitrotoluene poisoning.

Accordingly, surveys were made of typical plants engaged in the manufacture and loading of trinitrotoluol particularly in Delaware, New Jersey, and Wisconsin, with special reference to the occupational hazards attendant upon the manufacture and loading into shells and the means for their avoidance.

As a matter of pressing importance, the results of this survey were immediately embodied in a bulletin on "Trinitrotoluol, Practical Safe-handling". This was published in the Public Health Reports of November 17, 1917, having been previously presented in October, 1917, to the section on industrial hygiene of the American Public Health Association.

Laboratory study of trinitrotoluol poisoning. As a further development of the work, and in cooperation with the Council of National Defense, systematic studies were commenced at the Hygienic Laboratory in regard to the methods of absorption and detection of trinitrotoluol, and the prevention of trinitrotoluol poisoning. This work was divided among the Division of Pharmacology and the Division of Chemistry of the Laboratory and covered the following phases:

1. Obtaining clear understanding of trinitrotoluol poisoning.

2. Discovering diagnostic means applicable to man for the early recognition of poisoning.

3. Studies of the influence of diet and alcohol on the susceptibility to trinitrotoluol poisoning.

4. The analytical procedure for the detection of

trinitrotoluol in animal tissues and secretions.

5. The chemistry of trinitrotoluol; its manufacture and impurities.

6. The vapor pressure and volatility of trinitrotoluol as influenced by temperature and humidity.

The laboratory studies made by the Hygienic Laboratory were further elaborated by intensive field studies at a shell-loading plant. As a result of these studies valuable conclusions were reached as to individual susceptibility, symptoms, absorption, excretion, the tolerance, the prophylactic value of diet, and the diagnostic tests for the recognition of early poisoning. The conclusion already reached by the British workers was confirmed, that the skin is the most important factor in the absorption of trinitrotoluene, the respiratory tracts coming next in importance. For the prevention of the absorption of trinitrotoluol through the skin, a special skin varnish was developed and also an inexpensive impermeable varnish for cotton gloves. In addition to this, skin washes were studied. It was found that a ten per cent solution of sodium hypo-sulphite, was the best inorganic solvent, known up to the present time, for this substance. A trial of this sulphite wash in a shell-filling plant showed that the workers were very anxious to use this prophylactic. Chemical analysis showed that a considerable amount of T. N. T. could be removed from the human skin by this solvent even after previous thorough washing with soap and water. The results of this study were published in the Public Health Reports.

In addition to trinitrotoluol poisoning, several other poisons used in the manufacture of munitions were investigated. Thus, at the request of the United States Navy and the Chemical Warfare Service, the

poisonous properties of Parazol, a new high explosive, were studied. At the request of the Ordnance Department of the Army, the action of mercury fulminate on the skin was investigated. At the request of the Air Service of the Army, a report was made on the subject of the toxic action of a certain airplane varnish. In all these studies, the Service cooperated also with the National Research Council.

Health hazard in the chemical Industry and health hazard to the workers. The chemical industry is, of course, one of the fundamental war industries. Studies of the health hazards in the plants of a large chemical company which had commenced in 1916 were concluded in July, 1917. In addition to sanitary surveys in the factories, the physical condition of chemical workers was studied by means of careful physical examinations, special attention being paid to the effects upon the health of workers in the manufacture of the nitro and amido derivatives of benzol.

During the course of the study it was practicable to make important recommendations to the superintendants of the various plants to enable them to improve the conditions surrounding the workers.

Other industrial surveys. As the war progressed, the need for a sanitary working environment and measures for the supervision of the health of workers continued to be more fully appreciated by all concerned, resulting in increased demands upon the Public Health Service for industrial service by the Ordnance Department, by state industrial commissions, state and local health departments, and manufacturers, for studies and surveys by the Public Health Service in industrial plants. These requests were complied with so far as the personnel would permit.

Explosives industry. Close cooperation was maintained with the Industrial Service Section, Production Division, Army Ordnance Department at whose request numerous shell-loading and explosives plants were investigated as to their hygienic conditions and at times as to their mechanical safety. Reports of these investigations were furnished to the Ordnance Department which saw to the enforcement of the recommendations therein contained. Thirty plants manufacturing T. N. T., picric acid, and other chemicals, loading shells, and hand grenades, and handling poison gases were included in this work. Among these plants may be mentioned the following:

The Etna Explosive Co., Mount Union, Pa., and Emporium, Pa.
The Atlas Powder Co., Webster, Pa., and Ferry Point, Perryville, Md.
McArthur Bros. Bag Loading Co., Woodbury, N. J.
Nitrate Plant No. 2, Muscle Shoals, Alabama.
Penn Trojan Powder Co. and Chemical Co., Allentown, Pa.
Picric Acid Plant, Brunswick, Va.
Quaker Valley Works of John B. Semple Co., Sewickley, Pa.
Roessler & Hasslacher Chemical Co., Perth Amboy, N. J.
Tullytown Bag Loading Co., Niagara Falls, N. Y.
U. S. Explosives Plant, No. 6, Nitro, W. Va.
U. S. Nitrate Plant, Toledo, Ohio.
Western Cartridge Co., West Alton, Illinois.

Surveys in Cleveland, Ohio. Under the direction of Consulting Hygienist Roger D. Perkins, 16 plants in Cleveland, Ohio, making khaki uniforms and blankets were investigated, special attention being paid to those handling shoddy. Eighteen plants making bronze and aluminum castings were also investigated.

Surveys in Niagara Falls. Soon after July, 1918, an investigation of the electro-chemical and abrasive plants in Niagara Falls was undertaken. This was commenced at the request of the Women in Industry Service of the Department of Labor and was carried on in cooperation with them and with

the Industrial Service Section of the Ordnance Department and the Niagara Falls Office of the Chemical Warfare Service. A thorough examination was made of these plants, chiefly with reference to the possible employment of women as an emergency war measure. Extensive changes were effected in several plants improving the health of the worker, increasing production, and resulting in financial advantage to the plant.

Surveys in East Chicago and Indiana Harbor, Indiana. During August, September, and October, 1918, a survey was made of the industries of 18 large plants in East Chicago and Indiana Harbor, for the most part metal refineries and steel and iron plants.

Surveys in Kalamazoo, Michigan. Similar studies in industrial hygiene in medical and surgical relief were made in industrial plants at Kalamazoo, Michigan at the request of the manufacturers.

Survey of Navy Yards. A sanitary survey of the eastern navy yards was made at the request of the United States Employees Compensation Commission and with the concurrence of the Navy Department. These studies were made in the navy yards of New York, Boston, Washington, Charleston, Portsmouth, N. H., Philadelphia, and Portsmouth, Va., and in the chemical works of the Naval Proving Grounds at Indianhead, Maryland. The work was begun in December, 1917, and concluded in March, 1918. Observations, conclusions, and recommendations were made relating to the following points:

1. Sanitary survey of navy yards, arsenals, and other industrial establishments under the supervision and control of the Navy Department, with special reference to the following points:

a. Hygienic construction,

the Commercial Service section of the Economic Cooperation Act for
Program 8611: Trade in Chemical Weapon Items. I commend
administration for their timely drafting of the initiative to the
Specific assignments of items to be monitored, the licensing
exemptions were extensive in general terms concerning the trade of the
Germans. Consequently provisions are contained in Command Directive
No 1234 (1944).

Program 12 Post Service and Trading (Part 2). Initial Planning
Implementation was finished, a system was made in the capability of
to issue alarms to that Division and Customs Service, for the very
major violations and which had also occurred.

Program 13 Training Activities. Training remains in particularly negative
to accept and evaluate valid laws with in international trends of Pakistan
Training as the standardization.

Program 14 Data Files. A monitoring system of the measure used under the
of the Project of the United States Department Commission operations and
of the maintenance of the long judgements. These studies show back to
the case, made at the time, during training activities, employees
a. Re. Maintenance and Investigation. Now and in the standard order of
the Small Trading Centers in Pakistan, Bangladesh. The trade was begun
in December, 1977, and continues to record 1981. International investments
and Procurement for that matter be the following matters

b. Section Three of Part Four, Chapter 4, and other Commercial
Export Control Act for the following purposes

a. Imposing sanctions

b. Suitability from the standpoint of present use,
c. Illumination,
d. Ventilation,
e. Drinking water supply and facilities for distribution,
f. Wash rooms, change rooms, locker rooms, lunch rooms,
g. Disposal of excreta and wastes.

2. Health hazards: The study of working conditions involving exposure to:

a. Dust (organic; inorganic),
b. High temperatures and humidities,
c. Industrial poisons, including poisonous fumes and gases,
d. Undue physical strain,
e. Excessive vibration,
f. Excessive noise,
g. Excessively long hours of labor.

3. Measures in practice to diminish the effect of health hazards.

4. Facilities for medical and surgical care of workers:

a. First-aid facilities,
b. Dispensary facilities,
c. Amount of medical and surgical care given workers,
d. Study of records of morbidity and injuries.

5. Measures for the conservation of the health of workers:

a. Physical examinations and reexaminations,
b. Adaption of workers to work for which they are physically the best suited,
c. Education of workers in matters of personal hygiene,
d. Education of workers as to avoidance of occupational health hazards.

A specific recommendation in the case of each survey was submitted to the Surgeon General of the Navy.

Medical and surgical care of industrial workers. The medical and surgical care of industrial workers is of course fundamental in the mitigation and prevention of industrial hazards and to securing adequate supervision of health conditions in industrial plants. Because of wide variations in the

practice and facilities afforded, not only in different industries, but in different plants in the same industry, some work towards establishing minimum standards for such care became necessary. To meet this need, a comprehensive survey of the provisions for the medical and surgical care of industrial workers was undertaken by the industrial office of the Public Health Service, the investigation being in charge of a Consulting Hygienist. One hundred seventy industrial establishments, variously located in the eastern and middle western states, were visited during the first six months of 1918 for the purpose of studying their medical and surgical facilities for the care of workers. Among the different points which received consideration in this study may be mentioned: relation of medical departments to industrial organization; personnel of industrial medical departments; selection of industrial physicians; detached, part-time, or whole-time medical service; remuneration of industrial physicians; dispensary attendants; the special practitioners in industry; industrial dispensaries; activities of industrial medical departments; records and reports; cooperative medical service for small industrial establishments. The results of this survey were embodied in a bulletin which described existing conditions relative to the organization, management, and operation of industrial medical departments and proposed standards for such departments as suggested by analyses and observations based on the study.

Studies of shop lighting conditions. Correct conditions of illumination are closely related not only to ocular hygiene but also to maximum continuous production. In the surveys of the navy yards previously mentioned, the study of the shop lighting conditions formed a prominent part in the

survey, an assistant physicist being detailed for this special purpose. Detailed studies were made of the shop lighting conditions in all the navy yard surveys and specific recommendations made for their improvement. In addition to this, in cooperation with the Wisconsin Industrial Commission, studies of the shop lighting conditions in that state were made by the Public Health Service, the work being in immediate charge of Assistant Physicist. A special effort was made to conduct these studies in the work places of manufacturers having contracts for war supplies with the Federal Government. Circular letters were sent out to the manufacturers of the state informing them that the studies would be made. As a result, a large number of plants made requests for surveys. In the case of the majority of plants where surveys were made and recommendations for improvements were submitted, old equipment was remodeled and new equipment installed in order to procure better lighting conditions. In connection with these surveys, a paper was published on the "Lighting of Industrial Establishments", which was issued as Reprint 429 of the Public Health Reports. This paper dealt with the need for supervision of such lighting and suggested a system of maintenance rating for artificial light equipment.

Investigations in industrial fatigue. The British experience had already shown that the occurrence of industrial over-fatigue was one of the conditions which operated to diminish the industrial output so essential to the proper conduct of the war. Intensive studies on this point had already been made in England, the problem being to study the working hours and processes in relation to the fatigue induced so that output should be continuously at a maximum. The great importance of this question from

the war standpoint was fully appreciated by the National Council of Defense which had already appointed a committee on industrial fatigue of which an officer of the Public Health Service was a member. The Council of National Defense was without funds for the prosecution of the necessary field studies which would give the necessary information in regard to these points insofar as the American industrial situation was concerned. The Public Health Service, however, cooperated with the Committee of the National Council for Defense by providing funds and the personnel for the conduct of these investigations. The following members of the committee of industrial fatigue of the Council of National Defense were appointed by the Service: Frederick S. Lee, as consulting physiologist; P. Sargant Florence, as supervising field investigator; Josephine Goldmark, as special expert; A. H. Ryan, as scientific assistant; Ernest G. Martin, as physiologist; and Ernest L. Scott, as physiological chemist. The Service also maintained throughout the year a staff of from six to eight young men and women to collect and work over the data. The field work began on July 19, 1917, and was prosecuted not only throughout the period of the war but also, because of the great scientific interest of some of the data which were developed, into the fiscal year 1919-1920.

While general investigations were made in a considerable number of factories, the detailed investigation was limited to two very large establishments which offered exceptionally good opportunities for observation. About four months were devoted to a large factory employing about 39,000 hands and engaged in the manufacture of automobiles. The day's work was performed in three shifts of eight hours each. The rest of the time was spent at a factory employing 12,000 to 13,000 hands,

and engaged in the making of fuzes for explosive shell for war use. Here two shifts were employed — a day shift of 10 hours and a night shift of 12 hours and 20 minutes. One of the main objects in view was the determination of the conditions under which the operatives, the human machines of the factory, can perform their work with the highest degree of efficiency. Every endeavor was made to make the investigation exact, and the data secured had high statistical validity, taken in some cases from the existing records of the factories, but largely from quantitative measurements made by the field investigators. Subjects which were considered included output; night work; effect of recess periods; accidents; physiological tests for fatigue.

The general conclusion from the work, insofar as the two plants studied are concerned, was that conditions favoring maximum continuous production were all in favor of the 8-hour as compared to the 10-hour plant.

HEALTH SUPERVISION IN INDUSTRIAL AREAS

Administrative and Control Measures

Control of malaria at shipbuilding plants. Supervision was assumed by the Public Health Service over antimalaria and antimosquito work in the vicinity of shipbuilding plants at Wilmington, N. C. Special surveys of malarial conditions were made in the vicinity of shipyards at Beaumont, Austin, and Wichita Falls, Texas.

Sanitation in industrial hygiene at Government plant at Nitro, West Virginia. Upon the request of the Secretary of War, the Public Health Service undertook the sanitation and the medical and surgical relief at the United States Explosive Plant C. Nitro, West Virginia, during the

period of construction. This duty was assumed February 17, 1918. At that time there was practically no construction completed on the site of the proposed plant. Some idea of the magnitude of the work is conveyed by the fact that it required the services of 35 medical officers, 80 nurses, and numerous other persons not including laborers in the sanitary department, who numbered about 300. The following is a summary of the work which was accomplished:

Examination of applicants for employment. A suitable building was erected and equipped for the purpose of examining physically applicants for employment. In this way it was possible to prevent the introduction of contagious and infectious diseases, including the venereal diseases. It was also possible to determine various physical defects or diseased conditions which were amenable to timely and appropriate treatment.

Practically no rejections were made because of physical disability. All, capable of performing work at all were, through physical examination, put at some occupation at which they were able to earn a livelihood in a manner not detrimental to their physical condition. Up to July 1, 1918, 45,058 applicants for employment were examined. Of this number only .8 per cent were permanently rejected. Temporary rejections up to that time were 857 or approximately 1.8 per cent. These were nearly all venereal cases which were referred immediately to the proper department where they were subjected to treatment. Unless they deserted, they were eventually cured by continued treatment.

Delousing. As a result of the physical examination 1,679 men infested with lice were discovered. The infested men were temporarily placed in the detention barracks and then sent through the delousing house. Here they were subjected to a cleansing bath, medical inspection, and treatment.

In the meantime, their clothing was run through the sterilizer. Their bed clothing was placed in a small air-tight building and subjected to cyanide fumigation. It is of interest to note, however, that in spite of most rigid inspection and treatment, cases of pediculosis constantly escaped notice, to be discovered at a later date.

Vaccination and typhoid inoculation. At the time of enrollment the men were vaccinated against smallpox and were also encouraged to receive typhoid inoculation. By means of persistent health education, the value of these measures became known to those employed at the plant with the result that 73,162 persons received prophylactic typhoid inoculations. Owing to the changes in personnel, it was not possible to complete the course of treatment in many of these cases although by far the great majority of those who remained employed, received the full number of protective inoculations.

Hygiene of housing. During the period of construction the employees of the plant were housed in buildings similar in most respects to the barrack buildings as constructed for the army during the period of mobilization. Twenty-seven of these barracks were provided, 160 feet in length, 48 feet in width, and 18 feet high with 7,680 square feet of floor space and 69,120 cubic feet of air to each floor. They were two stories in height with 34 regulation windows on either side and 12 on the ends. They were equipped with 100 double-deck iron beds on the second floor, and 80 double-deck iron beds on the first floor, one-half of the first floor being used as a recreation room. These barracks provided accommodations for 300 men each. Twenty bunk houses, 120 feet long by 24 feet wide and 8 feet high, also offered facilities for sleeping quarters of the laborers. These were likewise equipped with double-deck beds. Between each barracks building and bunk house was a bath house connecting with the barracks by a covered

passageway.

Bungalow housing. Various employees, mostly administrative officers and office force, were housed in the bungalow section apart from the barracks section. The total number living under these conditions was relatively small at first, about 1500, but later increased to approximately 10,000. With a view to maintaining the housing facilities in a proper hygienic condition, a separate division was made of this subject and adequate personnel assigned to the maintenance of hygienic housing conditions. The necessary attention was paid to such subjects as ventilation, illumination, the maintenance of proper temperature, washing and toilet facilities, baths, adequate and clean bed clothing, extermination of vermin, etc. Regular inspections were made to determine at the earliest possible moment, the presence of communicable diseases. Upon the discovery of such cases, isolation for the protection of the remainder of the force was carried out. As a result of these activities, although cases of the common infectious or communicable diseases were imported on several occasions to Nitro, no secondary cases occurred.

Sanitation. The problem of sanitation on a construction project of this magnitude involved both temporary and permanent measures. Under the former category were necessitated the emergency sanitary measures and precautions which must necessarily be taken in a large construction camp in the absence of a safe water supply or any sewerage system, the extensive opportunity for mosquito and fly propagation, and the immense amount of excreta, refuse, and debris, which had to be disposed of.

The problem of a temporary safe water supply was met by the installation of a small chlorinating plant and the drilling of several deep wells. 1,055 latrines were constructed; a total of 15,149 gallons of garbage were disposed of; 14,585 wagon loads of refuse were in-

Development.

Population Statistics. Statistics pertaining to population characteristics and trends are needed in the development planning process. The first census taken in Liberia was in 1843. Since then, there have been 11 censuses taken, the most recent in 1962. Although the census is a major source of information, it is subject to many limitations. Among the most important of these limitations are: (1) the inaccuracy of the data collected, (2) the non-availability of census data for different geographic areas, (3) the non-availability of census data for certain years, and (4) the non-availability of census data for certain demographic characteristics. Since the accuracy of census data depends on the completeness of the enumeration, the census data are usually inaccurate to the extent that the enumeration is incomplete. Liberia's census data are no exception. Some of the factors which contribute to the inaccuracy of the census data are: (1) the inadequacy of the enumeration areas, (2) the inadequacy of the enumerators, (3) the inadequacy of the supervision, and (4) the inadequacy of the publicity.

Publications. The quality of publications is a reflection of the quality of the census data. Census publications usually include the following: (1) census report, (2) census publications which are concerned with the basic data collected by the census, and (3) publications which analyze the data collected by the census. Liberia has published the census report and some census publications which are concerned with the basic data collected by the census. However, no publications which analyze the data collected by the census have been published.

The publication of a population census report is the most important activity of a census organization. It is usually considered a part of the census operation. Liberia has published only one census report. This report was published in 1964 by the Bureau of Statistics. It was published approximately two years after the census was taken. The report contains a brief description of the census methodology, a few tables showing the distribution of the population by certain characteristics, and a brief analysis of the data collected by the census. The report is inadequate in many respects. It does not contain a description of the census methodology sufficiently detailed to enable the user to evaluate the quality of the census data. It does not contain a sufficient number of tables showing the distribution of the population by certain characteristics. It does not contain a sufficient analysis of the data collected by the census. The report is inadequate in many respects. It does not contain a description of the census methodology sufficiently detailed to enable the user to evaluate the quality of the census data. It does not contain a sufficient number of tables showing the distribution of the population by certain characteristics. It does not contain a sufficient analysis of the data collected by the census.

cinerated, and 11,770 tons of manure were safely disposed of.

Permanent measures for sanitation. A permanent water system with necessary filters to supply a city of 35,000 population was installed and chemical and bacteriological analyses of this water were made daily in the laboratories of the hospital. An adequate permanent sewage system for sewage disposal was constructed, and a street cleaning department including the collection and disposal of garbage and refuse was inaugurated. A complete system of food inspection was also installed. A special division of food inspection was created and all food stuffs were subject to sanitary regulation from their source until the time of consumption.

Occupational health hazards. The gradual completion of the plant witnessed the inauguration of the manufacturing processes for which the plant was established, i.e. the production of smokeless powder. Some of the health hazards met with during the operation are as follows: nitric and sulphuric acid burns, caustic alkali burns, the inhalation of nitric and sulphuric fumes with chlorine, exposure to excessive heat and humidity, alcohol and ether intoxication, poisoning by diphenylamine, and burns from flares or deflagrations of powder. In order to lessen these hazards an educational campaign was conducted by medical officers instructing the workmen in the dangers and the first-aid treatment of the employed. One-hundred twenty five stretcher outfits containing each one stretcher and one blanket were scattered through the plant, being easily accessible to those who might be injured. The nearness of field emergency stations made it possible to render medical service almost immediately upon the occurrence of an accident. Three motor ambulances were stationed at the emergency hospital. First-aid boxes for immediate relief were installed

in all places deemed advisable and shower-bath facilities were installed in the acid area for use in acid burns.

Medical and surgical relief. In order to provide the necessary medical and surgical relief, 4 six-bed emergency dressing stations were constructed at convenient locations about the plant. In addition to this there were constructed a 40-bed emergency hospital, and 80-bed isolation hospital and a 325-bed general hospital and dispensary. In addition to the relief of those actually ill or injured, medical relief was given to those afflicted with disabilities and to constructive and repair work in connection with eye, ear, nose and throat and dental affections.

Ship yard sanitation. Following the executive order of July 1, 1918, transferring the health activities of the Federal Government relating to the conduct of the war to the Public Health Service, arrangements were made for the supervision of activities in connection with the health and sanitation of ship yards under the control of the Emergency Fleet Corporation. The transfer of activities from the departments of health and sanitation of the Emergency Fleet Corporation, not only placed at the disposal of the ship yards, the personnel of the Public Health Service experienced in public health work, but because of the close relations between the Service and the state and local health authorities, made it possible to bring about substantial and immediate improvements, not only within the ship yards, but in the communities in which the yards were located.

On August 28, 1918 an officer of the Public Health Service was detailed to assume charge of the health and sanitation work, but arrangements were effected by which Lieutenant Colonel Philip S. Doane of the Medical Corps, U. S. Army detailed to the Emergency Fleet Corporation

remained in de facto charge of activities until November 1918 allowing the Public Health Service officer to become thoroughly acquainted with the measures already taken and survey the conditions in the yards. The Emergency Fleet Corporation furnished financial support until February 15, 1919 after which date arrangements were made to meet the expenditures of the work from funds under the control of the Public Health Service. On November 15, the officer detailed from the Public Health Service became the de facto head of the health and sanitation section. The personnel then on duty were given technical appointments in the Public Health Service, their salaries and expenses until February 15, 1919, being paid by the Emergency Fleet Corporation.

Important changes were made in plans of operation. The personnel of the home office were given special duties, each officer specializing in some particular branch. A plan of decentralization was adopted in order that the activities of the field representatives could more directly and effectively cope with and regulate the sanitary problems existing in the yards.

In addition to the general plans for promoting health sanitation in the ship yards, arrangements were made within the limits of the funds provided for improving and developing sanitary organizations and conditions in certain communities adjacent to the ship yards where need for such assistance seemed most urgent.

Hog Island and Harriman, Pa. Active supervision of health conditions at the Hog Island and Harriman yards was maintained by the Pennsylvania State Board of Health, their representative having a technical status without compensation in the Public Health Service.

Chester, Pa. Because of increased activities in the ship building industry, the population of Chester, Pa., had recently grown from 30,000

to approximately 100,000 persons. Typhoid fever became prevalent in this city in August 1918. Living accommodations became overcrowded, general sanitary conditions were bad, and health organization inadequate. An inspection conducted by the U. S. Ordnance Department indicated the necessity for relief. At the request of the state and local health authorities, the Public Health Service organized a sanitary unit in Chester.

A survey was also made and data were collected upon which ordinances for the control of insanitary conditions were based.

Influenza epidemic. Medical officers recruited by the Service gave assistance during the influenza epidemic. At a number of the yards, these officers followed up cases of the ship yard workers in the attempt to return them to duty in the yards.

Mosquito control. Attention was directed toward the importance of preventing mosquito breeding in the vicinity of shipyards.

Conference with munitions manufacturers. The Public Health Service was represented on a sub-committee on sanitation, committee on welfare, the advisory committee on labor of the Council of National Defense. This committee prepared a series of precautions to be adopted for the protection of workers in the explosives and munitions industries. Before making recommendations as to the adoption of such regulations, the committee called into conference the principal manufacturers in the country concerned in such industries to see if there were any objections from the practical standpoints to such recommendations. The regulations proposed by the committee were adopted by the manufacturers concerned and were duly published in the Public Health Reports for July 5, 1918.

Cooperation with the Division Committee on Welfare and Public Sanitation.

An officer of the Public Health Service served on the divisional committee on village and public sanitation, section on sanitation, committee on welfare work of the committee on labor, advisory commission, Council of National Defense. A valuable report on the sanitation of rural workmen's areas, the work of the committee, was published in the Public Health Reports of September 6, 1918. This report contained much valuable and practical information on the sanitary methods to be employed either in constructing new industrial communities or in enlarging existing ones to take care of the sanitation of war workers therein.

RETROSPECT:- Importance of industrial hygiene work as a war measure. In the field of public health work, industrial hygiene stands out as a war measure of utmost importance. Victory in modern warfare has come to depend on maximum continuous output in war industries more than upon any other factor. A continuous state of health on the part of individual workers in turn is of fundamental importance in maintaining maximum continuous output. In the well-known words of the British Munitions Committee, "without energy there is no output; without health there is no energy." In achieving maximum continuousoutput, therefore, perhaps the most important problem of all is keeping the workers in a continuous state of health. For these reasons, the work in industrial hygiene, always a matter of great public health importance, acquires, in war-time, an added emphasis. Such times of stress witness, to an unprecedented extent, the expansion of the explosives, metallurgical, chemical, textile, and rubber industries. New products, new methods of manufacture are introduced; many new industrial poisons are handled; industrial communities spring up in fresh locations like mushrooms over night. Many women enter industries to

replace men who have been called to the front, thus exposing them to industrial hazards with which they are unfamiliar. In the period of initial stress and in the desire for a maximum output, sanitary precautions and sanitary environment are too likely to be neglected; long hours and long periods of over-time are worked; too little attention is paid to the sanitation of the total environment of the worker; in fact, there is a tendency to neglect the health of the industrial army whose output is essential to the successful output of modern war. This, in turn, is followed by diminished production. The whole industrial system lags and becomes ineffective because of ill health and over-fatigue on the part of the workers due to neglect of health supervision.

Fully alive to this phase of the situation, the Public Health Service did its best to cope with the industrial health problem. It is believed that with the facilities and personnel available, it rendered all the service that it was practicable to give. Nevertheless, it fell short of rendering the effective service of which it was capable because of the inadequacy of existing legislation and because the pressing need for service of this character was lost sight of as a matter of national policy in the other momentous questions arising from the participation of the United States in the world war. As has already been indicated, the pressing need for services in industrial hygiene was indicated by the establishment of health services in part of the other Government agencies that came in contact with industry as the Emergency Shipping Fleet Corporation, the Labor Department, and the Ordnance Department. The promulgation of the executive order under the Overman Act of July 1, 1918, which placed all civil public health measures as a result of the war to

the Public Health Service, clarified the situation and led at once to the organization of the industrial hygiene work of the Public Health Service on a much firmer and more satisfactory basis. Had the war continued, there can be no doubt but that an exceedingly effective, yet economical health supervision of war industries would have been fully developed. Nevertheless it takes considerable time to develop effective organizations of this character. Valuable time would have been saved had t the Public Health Service, from the first, been invested with the necessary funds and authority to proceed at once in the business of giving service in industrial hygiene in orderly and effective way. It must also be remembered that it is not solely plant conditions, but the total sanitary environment of the worker which may react importantly upon his health and consequently upon his output. Conditions affecting personal and community hygiene also play a prominent part in the picture. The proper safeguarding from the health standpoint of the worker's total environment can be effected only by the close cooperation of federal, state, and local health authorities. It is needless to say that such cooperative arrangements can be adequately secured in times of war only through a central health agency having broad general experience in all fields of the public health. From this wide background of experience this central agency should supervise and direct all such civil health activities following the principle which the Public Health Service has always followed, namely: cooperating with and supplementing, but not supplanting, state and local health agencies.

The experience of the United States in the world war leaves many valuable lessons behind. These should be duly heeded, should it ever be necessary for this country again to take up the gage of battle. Not the least important of these is as follows: Whenever, in connection with the

interests of the Federal Government, health service dealing with the civil population must be rendered, then the Public Health Service should have supervision and control of such activity and be authorized to furnish the personnel necessary for its conduct.

Therefore, upon declaration of war, the Public Health Service should, automatically, be in full charge of civil health operations on behalf of the Federal Government, as the War and Navy Departments are in charge of military and naval operations.

So far as service in industrial hygiene is concerned, the measures outlined in the Program of War Activities of the Public Health Service, published in the Public Health Reports of September 27, 1918, indicates, in a general way, the activities to be undertaken in this field which are as follows:

a. Securing adequate medical and surgical supervision of employees in places of employment by the appointment as officers of the Public Health Service of competent medical men as industrial surgeons, these surgeons to be paid a nominal salary by the Public Health Service and the remainder by the establishment-- such officers will perform their duties in accordance with adequate standards of professional service-- in addition they will render reports to the Service of the prevalence of disease among employees and the sanitary conditions of industrial communities.

b. Establishment by the Service in cooperation with the Department of Labor of minimum standards of industrial hygiene and the prevention of occupational diseases.

c. Improvement of the sanitation of industrial communities by officers of the Service in cooperation with State and local health authorities, and other agencies.

d. Medical and sanitary supervision by the Service of civil industrial establishments owned or operated by the Federal Government.

e. Establishment, wherever practicable, of dispensaries and hospital facilities for United States Government employees.

[illegible] of the Public Prosecutor, Section [illegible] are
[illegible] applications must be processed, since the Public Prosecutor should
have sufficient time [illegible] of their application and be informed in [illegible]
the personnel concerned [illegible] for its decision.

Therefore, upon instruction of the Public Prosecutor General,
respectfully, in the full sense of said Public Prosecutor General's [illegible] of
the Public Prosecutor, we ask for your cooperation and in terms of
applying [illegible] above mentioned.

In the [illegible] individual judges in accordance, the security
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In addition to the measures just outlined, the Public Health Service should also be provided with the necessary funds for the study and investigation of new industrial health problems arising out of the war industrial situation, such as the prevention of industrial poisoning from the new compounds and the like.

In modern warfare, nations fight, not alone through their armies, but as a whole. It is earnestly to be hoped that in any future war this opportunity of powerfully influencing, from the civil health standpoint, the effective participation of this country will be generally recognised as a national policy from the very outset and be suitably employed.

VII. PREVENTION OF VENEREAL DISEASES.

The first definite work of the Bureau for controlling venereal diseases was in the various extra-cantonment area clinics which were started in December, 1917. The next step by the Public Health Service in connection with the development of nation wide control of venereal diseases was the sending of a telegram, letter and memorandum by the Surgeon General on January 2, 1918, to the health officer of each of the states. These communications are so important as to warrant their being quoted in full as follows:-

TELEGRAM

"Control venereal infections in connection prosecution of the war constitutes most important sanitary problem now confronting public health authorities of United States. Plan of control mailed you to-day. Request your cooperation forceful enforcement same. Venereal infections should be made reportable and quarantinable means of diagnosis and cure should be provided. Campaign wisely conducted publicity should be launched. Please inform me your action in premises.

Surgeon General, United States Public Health Service."

LETTER

"Sir:

My telegram of this date as follows is hereby confirmed:-

'Control venereal infections in connection prosecution of the war constitutes most important sanitary problem now confronting public

health authorities of United States. Plan of control mailed you to-day. Request your cooperation forceful enforcement same. Venereal infections should be made reportable and quarantinable means of diagnosis and cure should be provided. Campaign wisely conducted publicity should be launched. Please inform me your action in premises.'

It is evident that the prevention of venereal infections in the military population is largely dependent on the degree with which these infections are prevented in the civil community. This imposes upon the civil health authorities the duty of forcefully attacking the venereal problem upon the basis of the control of communicable disease.

There is forwarded you herewith an outline upon which it is proposed to make this attack. Manifestly, no plan which can be set forth at the present time can be complete in all its details, nor can a plan be devised which in all its phases fits the requirements of each state exactly. Therefore, in the plan which I am sending you only the basic necessities have been stressed. Your cooperation in putting this plan in force is requested.

The Public Health Service in cooperation with the Red Cross and the Medical Department of the army is establishing venereal clinics in cities in immediate contiguity to the army cantonments. There is even greater need for the beginning of an active anti-venereal campaign in those cities which are outside of the military zones but into which soldiers go in search of recreation. Most important of all, perhaps, is the thorough education of the general public to the end that this disease group will be considered in the same light as are the other communicable infections. This will permit the free and frank discussion of this important question without offense to modesty.

I shall be pleased to have your views and suggestions as to the prosecution of further work along these lines. Whatever is to be done must be initiated promptly if we are to prevent the next increment of the draft from having the high venereal rate of the last.

Respectfully,

Surgeon General."

ENCLOSURE

"Memorandum relative to the control of the venereal diseases.

1. Epidemiology.
   (a) Peculiar to the human species.
   (b) Chronic diseases.
   (c) Spread by contact,- not necessarily sex contact; chronic carriers.
   (d) Very prevalent in all classes of society.
   (e) Most prevalent in classes of low inhibition.

2. Control.
   (a) Depends upon the control of infected persons.
   (b) Control of infected persons depends upon knowledge of their whereabouts.
      This may be determined by:
      (1) Morbidity reports by serial number (in the case of private practitioners), name to be disclosed when infectious persons cease treatment. Case then followed up by health department, which enforces quarantine act.
      (2) Morbidity reports from venereal clinic and hospital.
      (3) Legal enactment necessary to secure morbidity reports.
      (4) Enact and enforce ordinance requiring pharmacists to keep record (open at all times to health department) of sales of drugs for the prevention and treatment of gonorrhea and syphilis.
   (c) Object of this control is to prevent contact between infected and non-infected persons.
   (d) May be obtained by:
      (1) Quarantine of infected persons.
      (2) Cure of infected persons.
      (3) Education of general public to avoid direct and indirect contact with persons infected or presumably infected.

3. Quarantine of infected persons.
   (a) Those who desire cure and can afford treatment.
      (1) These are instructed by their physicians and theoretically are thus quarantined.
   (b) Those who desire cure and can not afford treatment.
      (1) These should be provided for the free treatment of this group.

         (a) Accurate diagnosis.
         (b) Dispensary relief.
         (c) Hospital relief.
   (c) Those who are careless or willful in the distribution of these infections through promiscuity.
      (1) These for the most part are the ignorant or the criminal classes. Careful physical examination of all persons entering jails or other public institutions, those found infected to be isolated either in a special hospital or under a probation officer who enforces dispensary relief.

4. Cure of infected persons.
   (a) Establishment of venereal clinics by health authorities.
      (1) Federal, in zones in close contiguity to cantonments.
      (2) State, in situations where local authorities refuse or fail to establish clinic.
      (3) City, particularly those cities in which commercialized or clandestine prostitution flourishes for the patronage of soldiers, but is beyond the authority of the Secretary of War.
      (4) Country, in thickly settled rural communities.
   (b) By the creation of new or the utilization of existing hospital facilities.
      (1) For the treatment of those who volunteer for treatment.
      (2) For the obligatory treatment of persons under control of the courts.
   (c) By legal enactment.
      (1) Declaring the venereal infections to be quarantinable.
      (2) By substituting confinement to hospital for confinement to jail in the case of those convicted by courts and having venereal infections.
      (3) By substituting remanding to a probation officer for the imposition of fines.
      (4) To carry out 2 and 3 it is necessary that all persons arrested be examined by the city physician or other authorized person.
      (5) By arrest of acknowledged and clandestine prostitutes by policewomen.

5. [illegible]

(a) [illegible]

(b) [illegible]

(c) [illegible]

(d) [illegible]

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6. [illegible]

(a) [illegible]

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(g) [illegible]

(h) [illegible]

(i) [illegible]

(j) [illegible]

(k) [illegible]

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(m) [illegible]

5. Public Education.
   (a) Relative problem of all moral and social issues, and place campaign solely on basis of control of communicable disease.
   (b) Propaganda of wisely conducted publicity.
      (1) Through public meetings addressed by forceful speakers.
      (2) Through public prints.
      (3) By placarding public toilets, placards to emphasize danger of venereal diseases and to recommend prompt treatment either by competent physician or at the free venereal clinic.
      (4) By follow-up work by social workers.
      (5) By the education of infected persons.
         (a) By physicians in private practice.
         (b) By venereal clinic and hospital."

The telegram, letter and memorandum quoted above received a hearty and universal response and encouraged the preparation of suggestions for State Board of Health regulations for the prevention of venereal diseases. This proposed uniform method of handling venereal diseases were developed at conferences with the Surgeons General of the Army, Navy and Public Health Service with many State Health Officers, as well as other interested and well informed persons. These suggestions made to the various State Health Departments closely followed the State-wide Plan for the prevention of venereal diseases introduced in Massachusetts by a Service officer, acting as State Commissioner of Health. These suggestions for the State Board of Health regulations declared venereal diseases to be dangerous to the public health and embraced ten principal features as follows:

1. Venereal diseases to be reported.
2. Patients to be given information concerning the nature of their diseases and the necessity for treatment until cured.
3. Investigation of cases with the view of obtaining information as to the sources of infection.
4. Provision for the protection of others from infection by venereally diseased persons by means of -
   (a) Quarantine of infected persons who by their habits are a menace to others.

(b) Measures to fix the responsibility of a person about to be released from quarantine so that he or she should be compelled to continue treatment until cured.

5. Conditions which make it possible to preserve in secret the name of the individual affected with a venereal disease so long as he or she does not menace the public by his or her habits.

6. Prohibition of drug store prescribing for venereal diseases.
7. The spread of venereal diseases to be declared unlawful.
8. Prostitution declared a prolific source of venereal disease and its repression to be considered a public-health measure.
9. Certificates of freedom from venereal diseases to be prohibited.
10. Records to be secret.

In addition to the foregoing essential features for State board of health regulations for the prevention of venereal diseases, it was suggested that provision should be made for the punishment of violation of the regulations; that provision for treatment in suitable hospitals while patients are under quarantine should be made at public expense; that for enforcement of these regulations a bureau or division of venereal diseases should be established in the State health department; that the issuance of arsphenamine at public expense should be encouraged; that provision should be made for the examination of prisoners; that laboratory tests for syphilis and gonorrhea should be made for physicians in the State health laboratories; that due provision should be made for follow-up and social-service work in connection with the prevention of venereal diseases; that institutions should be provided for the segregation of venereal-disease carriers whose conduct could not be adequately controlled in any other way; that the floating or passing on of persons having venereal diseases from one community to another be prevented; and, finally, that the Bureau of Venereal Diseases carry on a campaign of public education in venereal-disease prevention and in the conditions responsible for the dissemination of these diseases.

The response to these suggestions was immediate and gratifying. Inquiries began to come to the bureau so rapidly and appeals for help followed in such rapid succession that the personnel in the Division for Domestic Quarantine had to be increased.

On April 25 the following telegram was sent to State health officers:

> "As a result of conference with the Surgeon General of the Army, the Public Health Service will appoint a man in your State to assume charge of venereal-disease control under your direction, you to be consulted as to appointment. Salary to be paid by State and Federal Government jointly, according to special needs, but appointee to wear uniform of Public Health Service officer. Wire if such cooperation desired and letter will follow."

This telegram resulted in a large number of acceptances of the offer and many inquiries for further details. Letters were written to all the State health officials explaining the telegrams and Public Health Service officers detailed to confer with State health officers in order to further explain the plan and perfect arrangements for its execution. The details of the plan were briefly set forth in the following memorandum:

EXPLANATION OF ORGANIZATION OF WORK.

There should be a division or bureau of venereal diseases created in the State health department and the work should be undertaken along the general lines indicated in bureau letter to the State health officer. This bureau should have its activities grouped under the following headings:

1. Notification of cases of venereal disease to the health authorities.
2. Repressive measures looking toward isolation and treatment in detention hospitals of infected persons who are unable or unwilling to take measures to prevent their becoming a menace to others; also measures for the suppression of prostitution.
3. Educational measures, including measures for informing the general public, as well as infected individuals in regard to the nature and manner of spread of venereal diseases and the steps that should be taken to combat them.

4. Extension of facilities for early diagnosis and treatment. State to be systematically divided and organized for this purpose with representatives of the division of venereal disease in charge of the work in each area.

The time is opportune for immediate active cooperation between the Public Health Service and State departments of health in carrying out all the measures mentioned under the four preceding heads. It is believed, however, that the whole program can be most advantageously carried out if special stress is laid upon the last feature, because with the organization of each State into districts and the establishment of venereal clinics in strategic areas the machinery necessary for the entire plan will automatically be set in motion. Although the operation of this machinery will at first undoubtedly be imperfect, the following twofold results should be immediately accomplished:

First. Establishments of centers for carrying out workable regulations on reporting and the institution of repressive and educational measures appropriate to particular communities.

Second. Immediate reduction in venereal-disease foci with a marked decrease in the prevalence of such diseases in both the civilian and military population.

The first aim, therefore, of the State bureau and division of venereal diseases should be to establish a chain of venereal-disease clinics. The operation of these clinics should be standardized according to methods to be presented and agreed upon at the State health officers' conference in June, but in the meantime it is not advisable to await the perfection of all the details before starting the work.

As a result of the foregoing activities, 24 States had made definite arrangements by the end of the fiscal year to cooperate with the Federal Government by having an officer of the Public Health Service to assume charge of the venereal-disease control under the joint supervision of the State health department and the United States Public Health Service.

The officers in charge of this work were informed by circular letter that the campaign for organization embraces the following four principal features, and they were instructed to submit monthly reports covering the activities along these lines:

(1) Educational: Acquainting the public with the nature of the diseases and the objectives to be accomplished.

(2) Law enforcement: Securing cooperation of the physicians in reporting cases and of the police in apprehending prostitutes, vagrants,

and such other persons as can be reasonably suspected of having venereal disease in communicable stages.

(3) Propaganda to secure local funds for providing detention homes and hospital facilities for isolation and treatment of venereal-disease carriers who by their habits are a menace to the public health.

(4) Establishment of increased facilities for early diagnosis and treatment.

In addition to the activities mentioned, definite progress was made in the following phases of the work:

(1) Better cooperation between the personnel of the Commission on Training Camp Activities and the Public Health Service officers engaged in extracantonment sanitation; (2) provision for the treatment of United States prisoners by cooperation with the Department of Justice; (3) distribution of free arsphenamine to clinics operated under joint State and Federal control.

The great importance of the problem with the ever-increasing difficulties attendant upon proper solution thereof soon made it apparent that lack of detention homes for the treatment of venereal-disease carriers would seriously impede the proper carrying out of the program. Besides this it also became apparent that the States would not have sufficient funds in many instances to carry on any educational propaganda in connection with the work. Moreover, it was becoming increasingly difficult to secure adequate personnel to carry on the program either in its treatment or educational features. This lack of personnel was largely due to the fact that the Army was making large inroads upon the medical, nursing, and teaching professions of life, leaving the civilian population necessarily suffering under this handicap. At the same time that these difficulties were realized there was also an increasing realization on the part of the public of the importance of the problem. Many conferences were held, both official and unofficial, with the view to determining what might be done to

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better the situation. It was finally decided that Congress should be asked to appropriate sufficient funds for carrying out the program. At the annual meeting of the State Health Officers' Conference, held in June, the matter was thoroughly discussed, and as a result of conferences held both before and at the time of this meeting a bill was drafted which had the sanction of representatives from the Council of National Defense, and the Surgeons General of the Army, Navy, and Public Health Service. This bill was introduced into Congress before the end of the fiscal year, but was not finally passed until July 9, 1918.

This Act of Congress which is known as the Chamberlain-Kahn Act, was one of the most valuable single pieces of health legislation ever enacted into law.

The Chamberlain-Kahn Act provided for the establishment of a division of venereal diseases in the Bureau of the Public Health Service to be under the charge of a commissioned medical officer of the United States Public Health Service, which officer shall be an assistant surgeon general.

The duties of this division are threefold:

(1). To study and investigate the cause, treatment, and prevention of venereal diseases under rules and regulations prescribed by the Secretary of the Treasury.
(2) To cooperate with State boards or departments of health for the prevention and control of such diseases within the States.
(3) To control and prevent the spread of these diseases in interstate traffic.

For the administration of the division of venereal diseases the sum of $200,000 was appropriated for the fiscal year ending June 30, 1919.

The sum of $1,000,000 was appropriated annually for two years to be allotted to the States for the use of their respective boards of health, in the prevention, control, and treatment of venereal diseases.

The allotment to each State is to be made in accordance with the rules and regulations prescribed by the Secretary of the Treasury in the proportion which its population bears to the population of the continental United States. Except for the fiscal year ending June 30, 1919, the allotment to any State depends on the appropriation of an equal amount by the State for the prevention, control, and treatment of venereal diseases. The word "State" in the act includes the District of Columbia.

This Act also created an Interdepartmental Social Hygiene Board consisting of the Secretaries of War, Navy, and Treasury as ex-officio members, and of the Surgeons General of the Army, Navy, and Public Health Service, or representatives approved by the respective Secretaries.

The duties of this board were:

1. To recommend rules and regulations for the expenditure of money allotted to the States to assist them in caring for civilians whose detention, isolation, quarantine, or commitment to institutions may be found necessary for the protection of the military and naval forces of the United States against venereal diseases. To carry on this work $1,000,000 was appropriated for the two fiscal years of 1919 and 1920, to be spent under the joint direction of the Secretaries of War and Navy.

2. To select certain universities, colleges, or other suitable institutions or organizations, to which allotment of money may be made for the purpose of discovering more effective medical measures in the prevention and treatment of venereal diseases; and for the purpose of discovering and developing more effective educational measures in the prevention of venereal diseases, and for the purpose of sociological and psychological research of the problems involved. The sum of $400,000 was appropriated annually for two years to cover these allotments - $300,000 for the development of educational measures, $100,000 for the discovery of more effective medical measures.

3. To recommend to the Secretaries of the Treasury, War and Navy general measures to promote the correlation and efficiency of the work in venereal-disease control in their departments.

The allotment of one million dollars to be appropriated to the several states for the fiscal year ending June 30, 1919, was not dependent upon

the State appropriating an equal amount during that fiscal year. The various states accepting their allotment were required to sign an agreement that they would expend this allotment according to regulations promulgated by the Secretary of the Treasury, in accordance with law. These regulations were the foundation upon which rested the venereal disease control program of the Public Health Service and the State Boards of Health. They are, therefore, quoted in full as follows:

"State boards, or departments of health receiving their respective allotments shall agree to the following cooperative measures under which their appropriation shall be expended:

1. There shall be put into operation through a legislative enactment or a State board of health regulation having the effect of law regulations in conformity with the suggestions approved by the Surgeons General of the Army, Navy, and United States Public Health Service for the prevention of venereal diseases. The minimum requirements of these rules are:

(a) Venereal diseases must be reported to the local health authorities in accordance with State regulations approved by the U. S. Public Health Service.

(b) Penalty shall be imposed upon physicians or others required to report venereal infections for failure to do so.

(c) Cases shall be investigated, so far as practicable, to discover and control sources of infection.

(d) The spread of venereal diseases should be declared unlawful.

(e) Provision shall be made for control of infected persons that do not cooperate in protecting others from infection.

(f) The travel of venereally infected persons within the State shall be controlled by State boards of health by definite regulations that will conform in general to the interstate regulations to be established.

(g) Patients shall be given a printed circular of instructions informing them of the necessity of measures to prevent the spread of infection and of the importance of continuing treatment.

2. An officer of the Public Health Service shall be assigned to each State receiving an allotment for the general purpose of co-operating with the State health officer in supervising the venereal-control work in the State. This officer shall be elected by the State health authorities and approved and recommended for appointment by the Surgeon General of the Public Health Service. The salary of this officer will be paid by the State out of the funds made available from the allotment, except a nominal sum of $10. per month, which will be paid by the United States Public Health Service. In those States where a bureau of venereal diseases has already been established, with a full-time medical officer in charge, the present incumbent may be recommended for appointment by the State health officer, and with the approval of the Surgeon General, United States Public Health Service, he will be appointed as an officer of the Public Health Service. The general plan of work for the State bureau of venereal diseases will be:

(a) Securing reports of venereal infections from physicians and others required to report in accordance with State laws.

(b) Suppressive measures, including the isolation and treatment in detention hospitals of infected persons who are unable or unwilling to take measures to prevent their becoming a menace to others, the establishment of free clinics for the treatment of venereal diseases, and the elimination of conditions favorable to the spread of venereal infections.

(c) Extension of facilities for early diagnosis and treatment through laboratory facilities for exact diagnosis and scientific determination of condition before release as noninfectious in accordance with the standardized procedure that will be prescribed by the United States Public Health Service.

(d) Educational measures to include informing the general public, as well as infected individuals, in regard to the nature and manner of spread of venereal diseases and the measures that should be taken to combat them.

(e) Cooperation with local civil authorities in their efforts to suppress public and clandestine prostitution. The clinics referred to under (b) will form centers from which the other measures may be conducted by discovering the presence of infections, the securing of data for enforcing the regulations for reporting these diseases, and the institution of educational measures appropriate to particular communities. The immediate reduction in venereal-disease foci resulting from clinic treatment will result in a marked decrease in the prevalence of such diseases in both the military and civil population.

(f) Keeping of accurate detailed records of all the activities of the venereal-disease work. These will include careful records of each case treated, amount of arsphenamine used, final results, and disposition made of patients. Copies of these records must be forwarded to the Surgeon General, United States Public Health Service, as a report at such intervals as they may be requested, and in accordance with instructions regarding the form of report.

3. Local funds that may be available, or that may become available from legislative appropriations or any other source for venereal-disease control, shall be used by the State or city health authorities having jurisdiction for the extension of the work, and such local funds must not be conserved through the expenditure of the funds that are allotted by the Congress through the United States Public Health Service.

4. In extension of the educational measures the State's health authorities and its bureau of venereal-diseases shall exert their efforts and influence for the organization of a State venereal-diseases committee that will be unofficial in character, but a valuable cooperative agency for furthering the comprehensive plan for nation-wide venereal-disease control.

5. The State health authorities shall take such measures as may be found practicable and decided upon in conference between the Public Health Service and State board of health representatives for the purpose of securing such additional legislation as may be required for the development of control of the spread of venereal infections. Action shall be taken to limit or suppress the activities of advertising "specialists" and quacks by prosecuting them under State laws, or such other measures as may be applicable and effective.

6. In expending the sum allotted a State, the rules and regulations to be promulgated by the Interdepartmental Social Hygiene Board for the expenditure of the $1,500,000 civilian quarantine and isolation fund under control of the Secretary of War and Secretary of the Navy, shall be given consideration by Public Health Service and State board of health representatives, so that the military necessities of each particular State may receive the consideration due its relative importance, and so that funds from the two sources may be correlated.

7. The State allotment shall be expended along general standard lines for all States and in accordance with an accounting system, to be formulated by the Interdepartmental Social Hygiene Board, approximately as follows:

(a) For treatment of infected persons in hospitals, clinics, and other institutions, including arsphenamine and other drugs, 50 per cent of the allotment.

(b) In carrying out educational measures, 20 per cent.

(c) In carrying out repressive measures, 40 per cent.

(d) In general administration and other activities of venereal-disease control work, 10 per cent.

(This distribution is provisional and subject to modification after conference and agreement between each State and the United States Public Health Service to meet best the needs of the particular State).

8. In carrying out the general Government program the administrative organization of the United States Public Health Service will be available at all times to State organizations in cooperative work, and assistance will be given to States whenever possible through the detail of employees, the securing of arsphenamines, providing literature for the educational measures, and in such other ways as may be found practicable as the work develops."

The effectiveness of the Chamberlain-Kahn Act was demonstrated through the fact that prior to June 30, 1919, forty-six states adopted regulations, either by statute or State board of health regulations, having the force of law similar to those promulgated by the Secretary of the Treasury and quoted above. Each of these forty-six States were allotted the amount due them from Congressional appropriation. The forty-six States were paid a total amount of $912,168.58. This left an unexpended balance of $87,831.42 from the appropriation made for the fiscal year ending June 30, 1919.

All of the States, therefore, with the exception of the District of Columbia, Nevada and Pennsylvania made provision for the control of venereal infections as a part of the work of the State Board of Health. This work was carried on in a uniform manner, insofar as was practical, through each of the States expending the Congressional allotted funds in accordance with the standard plan referred to in Paragraph 7 of the Treasury Department regulations quoted above.

Before describing the work in the States, reference should be made to the third specific duty imposed by Congress upon the Division of Venereal Diseases of the Public Health Service; viz., "to control and

diseases, making available laboratory facilities for the scientific diagnosis of venereal diseases, securing wide distribution of arsphenamine or similar products, treating persons infected in accordance with the best modern methods, obtaining the support of the entire medical profession in reporting their cases to the State boards of health in accordance with law, urging medical and allied colleges to improve and enlarge the courses offered their students in the diagnosis and treatment of venereal diseases, and securing the cooperation of druggists in refusing to dispense venereal nostrums and directing prospective purchasers of such remedies to venereal-disease clinics or reputable physicians.

The clinics established by the service and the State boards of health were:-

1. To provide measures for the discovery, treatment, and where necessary, control of individuals infected.

2. To provide measures for the protection of individuals not yet infected.

3. To collect data and keep records which will form a basis for the study of venereal infections and for the discovery of new methods for combating those diseases.

4. To give physicians an opportunity to discuss syphilis and gonorrhea in consultation, to give special opportunities for the instruction of students and nurses, and for the education of the public in the nature of these diseases.

In its program for establishing clinics, standards governing their personnel, equipment, and methods of procedure were decided upon by the service and the State boards of health and are embodied in Miscellaneous Publication No. 19, "Instructions to Medical Officers in Charge of State Control of Venereal Diseases." According to these standards, venereal-disease clinics were organized under the direct supervision of the medical officer, acting as the representative of the State board of Health. These clinics had a close relation to the city and county health officers and the local medical profession, and to the community in general.

prevent the spread of these diseases in interstate traffic. The first step in complying with this duty was to provide regulations for the interstate travel of persons infected with venereal diseases. These regulations were promulgated by the Secretary of the Treasury on November 19, 1918, as Amendment No. 7 to the Interstate Quarantine Regulations. The regulations governing the actions of such persons are as follows:

1. Any person infected with syphilis, gonorrhea, or chancroid who wishes to engage in interstate travel must first obtain a permit, in writing, from the local health officer under whose jurisdiction he resides. This permit shall state that, in the opinion of the health officer, such travel is not dangerous to the public health.

2. Any person infected with syphilis, gonorrhea, or chancroid who wishes to change his residence from one State to another must first obtain his release, in writing, from the local health officer. He shall inform the local health officer as to the place where he intends to reside and shall agree, in writing, to report in person to the proper health officer within one week after arrival at his new residence.

It shall be the duty of the health officer who issues the release to notify the health officer promptly under whose jurisdiction the infected person is to enter of its issue. This release shall contain the name and address of the infected person.

The receiving health officer shall, in turn, report the arrival of the infected person to the health officer who issued his release and notify the State health officer of his State that a person infected with venereal disease has entered his jurisdiction.

3. Any person infected with syphilis, gonorrhea, or chancroid who wishes to engage in interstate travel or change his residence shall agree to continue treatment, under the direction of a reputable physician, until the health officers shall have certified that he is no longer infectious. A certificate of noninfection shall not be issued until the health officer or his accredited representative shall have complied with the State board of health requirements for release of infected persons.

The Public Health Service in carrying out its agreement with the various State Boards of Health appointed some officer recommended by each State Board of Health, as the Bureau's representative in that State in venereal disease control work, which work was divided into three main phases -- medical, educational and law-enforcement.

MEDICAL MEASURES. The medical phase of the program involved the establishment of clinics, securing hospital facilities for persons infected with venereal

In these instructions to physicians in charge of venereal disease clinics two very important standards of procedure were established. These were the standards for the discharge of a venereal patient as cured or noninfectious. The responsibility resting upon the examining physician was fully emphasized and a uniform method of deciding whether or not a venereal patient was still a carrier of infection was outlined in Reprint No. 477 from the Public Health Reports of July 19,1918. The other important standard was the adoption of the "Manual of Treatment of Venereal Diseases" issued by a Board of Specialists acting for the Medical Officers of the Army. This manual was revised for the Public Health Service so as to eliminate the military expressions used and made to include the treatment of venereal infections in women.

In May, 1919, thirty-four States reported that 202 clinics had been organized for the treatment of venereal infections. In addition to these 202 clinics, organized as a result of the Chamberlain-Kahn Act, the Public Health Service and the American Red Cross were operating clinics for the treatment of venereal diseases in twenty-five extracantonment zones, thus making a total of 227 venereal disease clinics in operation on June 30, 1919.

Detailed information furnished by 154 of these clinics showed that during the fiscal year of 1919 - 56,508 cases of venereal diseases were treated, of which 28,425 were gonorrhea, 25,689 were syphilis and 2,394 chancroid. There were 327,592 treatments given; 63,922 Wassermann tests made, 1,274 treponema pallidum examinations made, and 89,419 examinations for gonococcus infection. At these clinics 353,054 doses of arsphenamine or similar product were administered.

REPORTING OF VENEREAL DISEASES

The regulations promulgated by the Secretary of the Treasury, under which State Boards of Health received Chamberlain-Kahn funds, required that venereal diseases must be reported to the local health authorities. Each of the fort,-six states adopted such regulations. This in itself was remarkable progress in public health legislation. Prior to the enactment of the Chamberlain-Kahn law only six states required that venereal diseases be reported just as are all other contagious communicable infections. During the fiscal year ending June 30, 1919, the cases of venereal diseases reported to State Boards were as shown in the following table:

Total	Gonorrhea	Syphilis	Chancroid & others
239,592	131,193	100,466	7,843

PHYSICIANS & DRUGGISTS' COOPERATION

In order that physicians might be made to realize their responsibility to the public in the problem of venereal disease control and also to place in their hands a copy of the standard "Manual of Treatment of the Venereal Diseases", a letter was sent to 132,000 doctors in the United States. With this letter was transmitted an explanation of the program and a statement as to the physicians personal responsibility for the success of the work. Each doctor was told that druggists were being asked to discontinue prescribing for venereal infections. A return postcard was enclosed with the letter requesting that the physician promise to cooperate. Replies were received from 60,666 physicians, almost 50 per cent of the medical profession of the United States.

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Each State Board of Health was furnished with these replies and requested to communicate with the physicians that did not respond and also to furnish those responding with the treatment manual. 35 States responded by purchasing 71,300 copies of this manual.

As mentioned above a communication was sent to each of the 48,500 druggists in the United States asking that they agree to the following:

1. Not to prescribe or recommend any remedy for a venereal disease.

2. Not to purchase any proprietary remedy to be sold to the public for self-treatment of a venereal disease and not to sell any such remedy after January 15, 1919.

3. To refill only such prescriptions for the treatment of venereal diseases as were given originally to the customer by a reputable physician who is still in charge of the case.

4. To distribute literature furnished by the Public Health Service to persons asking, without a physician's prescription, for remedies customarily confined to the treatment of a venereal disease, and to direct such persons to a reputable physician, to an approved clinic, or to the State Board of Health.

Nearly 80 per cent of the druggists responded favorably to this request and each State was asked to continue the correspondence with druggists until all had agreed to cooperate.

The following statement summarizes the work done by physicians and druggists throughout the United States during the fiscal year 1919:

Agreement cards signed by physicians	30,666
Agreement cards signed by druggists	38,286
Manuals purchased by State Boards of Health	71,300
Pamphlets sent State Boards of Health for distribution to druggists —	
Venereal Disease Bulletin No. 5	132,831
Venereal Disease Bulletin No. 56	809,598

The Bureau realized the menace of quack doctors and advertising medical institutes promising treatment for venereal infections. To reduce

this menace as far as possible the business managers of 20,000 newspapers and magazines in the United States were asked to agree to the following:

1. Not to print the advertisement of any doctor of medical institute offering to treat venereal diseases, either by naming specific diseases or by use of indirect terms, such as "private diseases", "lost manhood", "discharges", "Diseases peculiar to men", etc.

2. Not to print the advertisement of any nostrum described as effective in the self-treatment of venereal diseases.

Responses from these newspapers and magazines showed that approximately 99 per cent were either refusing such advertising or agreed to do so in the future.

EDUCATIONAL MEASURES

Probably the most remarkable phase of venereal disease control work developed by the Public Health Service was the extensive educational program carried on by the Bureau and the co-operating State Boards of Health. An intensive educational program was regarded as necessary on account of the fact that venereal infections had not been given proper publicity. The idea was very generally prevalent that venereal infections were either of no importance or were acquired as punishment for vicious practices. To counteract these erroneous impressions fifty separate educational pamphlets -- referred to as venereal disease bulletins were prepared for use.

In addition to these pamphlets special exhibits were prepared, one for boys and another for adults. Thirty-four copies of a motion picture film were purchased. This film was first used during the War under the title "Fit to Fight", which film was later considerably revised and the title changed to "Fit to Win". Lantern slides illustrating various phases of venereal disease control work were also prepared. This exhibit material, the slides and the moving picture films were purchased or borrowed by various State boards of health and used extensively.

The following statement shows the State Board of Health educational activities for venereal disease control during the fiscal year 1919:

No. of pamphlets distributed ------	5,817,042
Lectures:	
Number of ----------	7,210
Average attendance ----------	181
Film showings:	
Number of ----------	1,134
Average attendance ----------	555
Exhibit and Slide showings:	
Number of ----------	1,716
Average attendance ----------	215

Each State board of health had been urged by the Bureau to obtain printed material for the educational program to control venereal diseases. At the close of the year 41 States had purchased or reprinted 10,439,000 pamphlets exclusive of the physicians manual of treatment. The initial publicity was given to this work in November 1918 by distributing, by means of carefully selected mailing lists, about a million and a half four page pamphlets referring to the importance of venereal infection. As a result the Bureau was flooded with replies from all over the country from people commenting on the work being done, offering to help and requesting pamphlets for their own use and for distribution.

In December, 1918, over 15,000 requests for pamphlets were received and the comment was almost universally favorable. These requests were referred to State boards of health in the case of those states that had pamphlets for distribution. The total number of requests received by the Bureau during the fiscal year 1919 was 77,298 in addition to 174,683 requests received by State boards of health. This makes a total of 251,981 personal letters that were written to the Bureau and the various State boards of health by people interested in venereal disease control work.

As an additional publicity agency the Bureau arranged with the

railroad administration for the posting of framed placards, warning against venereal diseases, in all men's toilets of railway cars. 47,325 placards were so posted during the fiscal year 1919. Through the cooperation of State boards of health similar placards were posted in the men's toilets of railroad stations in 44 states.

Several special efforts were made to bring to the notice of the public the importance of venereal disease control by interesting various groups briefly summarized as follows:-

Industries & Commercial Organizations A series of venereal disease bulletins were sent to the managing executives of 57,000 establishments explaining the prevalence of venereal diseases and the need for controlling them. As a result of this communication and some follow-up work 1,012 firms purchased approximately $10,000 worth of literature for posting in their factories or distributing to their employees.

Churches A letter was sent to about 95,000 ministers in January, 1919, with a pamphlet outlining certain information in regard to venereal control work which ministers were asked to bring to the attention of their congregation on Sunday February 23, 1919. 12,984 ministers replied to this letter and later on 2,302 ministers replied that they had delivered social hygiene sermons; 985 held meetings for men and women; 456 appointed committees to promote the work.

Libraries In October, 1918, a circular letter was sent to all of the public libraries in the United States suggesting that they purchase copies of approved books on sex education to educate parents to a proper realization of the importance of this subject. Over 400 libraries expressed their willingness to cooperate in this plan.

It will be recalled that the Chamberlain-Kahn Act required that each State should appropriate as much money for venereal disease control work as they could receive under the terms of this Act before the federal allotment would be paid the State for the fiscal year ending June 30, 1920. In order to qualify under this provision 34 States appropriated $1,296,537.05.

In addition to these appropriations for venereal disease control, California appropriated $150,000 for a women's reformatory, Colorado appropriated $35,000 for a detention home, Ohio $650,000 for a feeble-minded

In addition to statute laws and appropriation acts referring to venereal disease control work, many State boards of health enacted regulations for the control of venereal diseases. These regulations have the effect of law.

At the close of 1919 two States only — Pennsylvania and Nevada — and the District of Columbia had failed to accept their Treasury allotment. This left a balance of $37,851.42 from the million dollar appropriation made by Congress for venereal disease control work during that year. This amount was added to the 1920 appropriation of a million dollars for appropriasment to the States on the population basis. The following statement shows the amount of the Federal allotment to States in 1920, the amount set aside by the States and the unexpended balance of the Federal appropriation on June 30, 1920:

Amount of Federal allotment available ———	1,037,851.42
Amount of State legislative appropriation ——	706,574.35
Otherwise set aside by States ———————	284,911.79
Federal allotment unexpended June 30, 1920 ——	338,628.65

In addition to the appropriation for the States, Congress set aside $200,000 to cover the expenses of the Division of Venereal Diseases for the current fiscal year.

The work of the Division was continued as during the preceding fiscal year along the three main divisions of medical educational and legal measures. During the year 1920 there was a large increase in the number of cases of venereal diseases reported and of clinics in operation. The clinical reports show a tremendous increase in the number of persons treated and in the treatment given. The reports made during 1919 were likewise of greater scientific and statistical value as the forms in use were becoming standardized and the clinic personnel were becoming more accustomed to the work.

It will be recalled that at the end of 1919 there were 237 clinics for the treatment of venereal diseases under the joint supervision of the U. S. Public Health Service and the State boards of health. During 1920 - 190 additional clinics were established, giving a total of 427 venereal disease clinics being operated by officials, medical schools and other institutions at which venereal disease cases could secure adequate treatment.

Again comparing 1919 with 1920, it is found that only 70% of the clinics in operation in 1919 made reports in enough detail to warrant their tabulation as to the patients admitted and discharged. In the year 1920 90% of the increased number of clinics gave this data as well as diagnosis, the number of treatments given, arsphenamine administered, and similar clinical data. The reported admissions to clinics in 1920 were 126,131, an increase of 113% over 1919. This clinic work was as follows:-

Cases of syphilis treated	62,205
" " gonorrhea "	57,561
" " chancroid "	6,365
Number of treatments given 1,576,642	
Arsphenamine administered - doses 190,747	
Wassermann tests made 175,872	
Examinations for gonococcus 155,275	

During this year an effort was made to standardize all of the venereal disease clinics through conducting a survey of 359 clinics located in cities of a population of 15,000 and over. The points upon which the relative standing of the clinics was determined as a result of this survey included location, equipment, record of treatment, laboratory facilities, hours in operation, methods of advertising the clinic, character of personnel, per capita cost of operating the clinic. This survey and study was helpful in stimulating those responsi-

ble for venereal disease clinics to bring the clinic to a higher degree of efficiency.

Reporting of Venereal Diseases - Every State, except Nevada and the District of Columbia, required the reporting of venereal diseases during the fiscal year 1920. The reports received by the Bureau from the State boards of health showed an increase of 36% over the 1919 reports. The total number of cases of venereal diseases reported to State boards of health during the fiscal year 1920 were as follows:-

Total	326,117
Gonorrhea	172,387
Syphilis	142,869
Chancroid	10,861

A comparison of the reports of cases from the individual States for 1919 and 1920 showed that only eight States, in which cases were reported during these two years, showed a decrease in the number reported. It was, however, impossible to determine the incidence of venereal diseases from the number being actually reported.

Arsphenamine - The State boards of health reported in 1920 that 328,382 doses of arsphenamine were distributed to physicians, hospitals and clinics. 69% of the total amount of this remedy distributed by the States was administered by the clinics. On June 21, 1920, the Secretary of the Treasury approved regulations for the control of the manufacture and sale of arsphenamine, neoarsphenamine, and sodium arsphenamine in accordance with the provision of Section 4 of an Act of Congress entitled "An Act to regulate the sales of viruses, serums, toxins, and analogous products in the District of Columbia, to regulate interstate traffic in said articles, and for other purposes."

In carrying out the educational program the Bureau addressed a

circular letter to approximately 40,000 dentists of the United States in which each dentist was asked: (1) To report all cases of venereal disease coming under his observation in accordance with the laws and regulations of his state; (2) to advise treatment for all cases of venereal disease, referring them to a clinic or a competent physician.

At the close of the year 15,307, or 38 per cent of the 40,000 dentists circularized had returned signed agreement cards. In referring these cards to the States, the division urged boards of health to furnish the dentists, who showed a willingness to cooperate, with general information concerning the work, with addresses of available clinics, and with cards upon which reports of cases should be made.

The largest increase in the general educational activities of 1920 was in the number of lectures, exhibits and motion picture film showings. The State boards of health and the Public Health Service distributed 8,082,792 pamphlets during the year. The various States also reported the purchase of 663 exhibits which were shown 11,053 times during the year with an average attendance at each showing of 207. Motion picture films were shown 1,916 times and 12,360 lectures and addresses were given during this year with an average attendance of 134. 25 conferences were held, mostly with educators, with an average attendance of 188 which makes a total of 25,575 meetings held at which venereal disease control work was discussed.

The work of interesting employers of labor in venereal disease work was continued during the year and the Bureau received reports from various industries stating that these business men had purchased 196,800 pieces of literature for their employees. The literature included 6,806 framed placards warning against venereal diseases which were permanently

displayed. Another aspect of the industrial work was the publication in 20 house organs and trade journals of specially prepared articles reaching approximately one million readers. At the suggestion of the Public Health Service the National Safety Council issued a bulletin to three million readers.

Sex Education The Public Health Service felt that one of the best preventatives of venereal disease would be utilized by the education of children in the physiology and hygiene of sex. In order to encourage instruction on sex subjects in high school, conferences of educators were held under the auspices of the Bureau of Education and the Public Health Service. In 1919, 12 such conferences, with an attendance of about 2,400 leading educators, were held in States east of the Mississippi River. In 1920, 19 such conferences were held having a total attendance of about 2,800 covering States as far west as Colorado and Utah. Besides these general conferences 48 lectures were given by a Service representative to teachers in summer and normal school classes. In order to ascertain the status of sex instruction in schools circular letters were sent to schools in the United States to which replies were received showing that 934 high schools were including sex instruction in regular classes. A study of replies for high school principals showed that 85% of those expressing an opinion favored sex instruction in schools; 10% doubted its advisability, and 5% definitely opposed it.

Law Enforcement Measures Regular legislative sessions were held in only a few of the States during 1920 with the result that little anti-venereal disease legislation was enacted. Two States, Alabama and Virginia, passed venereal disease control laws in which syphilis and gonorrhea were declared dangerous to the public health and giving

power to health officers to protect the public from infection by those communicable diseases. 102 City Ordinances for the control of venereal diseases were passed during the year. Extensive use was made of the model ordinances prepared and suggested during 1919 for the use of cities.

VIII. THE HYGIENIC LABORATORY AND THE WORLD WAR.

The outbreak of the World War found the Hygienic Laboratory prepared to meet such calls as might be expected to be made upon an institution of its kind. Section 4 of "An act to increase the efficiency and change the name of the United States Marine Hospital Service", approved July 1, 1902, reads:

> "Sec. 4. That the President is authorized, in his discretion, to utilize the Public Health and Marine-Hospital Service in times of actual or threatened war to such an extent and in such manner as shall in his judgment promote the public interest without, however, in anywise impairing the efficiency of the service for the purposes for which the same was created and is maintained."

This law gives due notice to the Public Health Service to be ready to answer the President's call for aid at any time war is threatened or actually being waged. The Service has always kept this contingency in mind; and the Hygienic Laboratory, being a part thereof, was not taken unawares when the emergency arose.

From the viewpoint of military requirements, the work of the hygienic laboratory may conveniently be divided into two general types: (1) The control of biologic products, and (2) the investigation of matters pertaining to the public health. Both of these work divisions came into practical use during the war. Perhaps the most important, as bearing directly upon the health of the military personnel, was -

The Control of biologic products. Ever since the passage of the biologics Act in 1902, it has been the aim of this institution to administer the law, under Bureau direction, to the best possible advantage to the public. With this object in view, close check and examination have been kept upon the increasing number of biologics

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offered by manufacturers, both in regard to purity and, where feasible, potency. From time to time, as the necessity and possibilities presented themselves, standards have been established and regulations promulgated by which manufacturers might produce at least reasonably uniform safe products.

With the outbreak of hostilities in Europe in 1914, contracts were placed by the Allied with American manufacturers for large quantities of biologic products, particularly tetanus antitoxin. It was foreseen that, under the stress of quick deliveries, inferior products might find their way into the market. An especially close watch was, therefore, kept upon biologic remedies intended for export. It was realized that the use of an inert or contaminated product might result in much illness and possibly many deaths among the troops. In one instance, the close supervision insisted upon by the Hygienic Laboratory prevented the shipment to allied authorities of a large consignment of contaminated tetanus antitoxin. Had this consignment been released it would have resulted in the loss of prestige enjoyed by the American manufacturers of biologics, to say nothing of the possible loss of life.

Due to the increasing probability of the United States being drawn into the conflict, it became advisable to give greater attention to certain features of biologics production, testing, and distribution. With this object in view, an appropriation of 10,000 was secured from Congress on July 1, 1916; and with the funds so provided, the laboratory found itself fully prepared to tighten up on the control of American biologic products upon the declaration of war on April 6, 1917.

A closer check both upon commercial establishments and upon the tests of their products in the Hygienic Laboratory was instituted, due

not only to the higher tension under which the country was working but also to persistent rumors of the activities of enemy agents. No indication was at any time found that the products put out by manufacturers were less reliable than those offered for sale in peace times. On the contrary, it appeared to be the aim of biologic manufacturers to maintain a high standard for their products and to avoid every suspicion that might attach to the personnel of their plants. It was known to the Service inspectors that the manufacturers kept a close watch on their personnel to see that no delinquency, either unintentional or malicious, entered into the processes of production.

As it appeared that antityphoid vaccine would be used in large quantities, work upon its standardization was completed in January, 1917. Manufacturers of the prophylactic, as well as Government agencies, were accordingly in position to supply a standard product to the military forces and also to civilians upon short notice.

As the duty of looking after the health of civilians in extra-cantonment areas devolved upon the Public Health Service, the laboratory was called upon to supply the typhoid prophylactic. Over a million c.c. of antityphoid vaccine were made and distributed in the two years from July 1, 1917, to July 1, 1919. Most of the vaccine was shipped in large quantities to extra-cantonment zones, where it was administered by or under the supervision of Service officers. This vaccine covered the two kinds, viz., single typhoid and triple vaccine, (typhoid-paratyphoid A and B), chiefly the latter.

In 1917 the standardization of antipneumococcic, antidysenteric, and antimeningococcic serums was undertaken, though not strictly as a war measure. Work upon this standardization would have been begun in any event, but the outbreak of war caused the laboratory to set the

work forward. It was realized that even an approximate standardization of these serums would be of value to the medical services, both military and civilian.

Early in 1917 evidence came to hand which made it desirable to provide, for prophylactic use in the military service, an antitoxin against the organisms causing gas gangrene. In June a conference was held with manufacturers and with representatives of the Medical Department of the Army at which arrangements were made looking toward the testing and standardization of such a product. Researches were promptly begun, the work finally being published in Hygienic Laboratory Bulletin 120.

The occurrence of several cases of tetanus which, epidemiologically, were associated in a suspicious manner with vaccine virus disclosed on "ivory" points of a single manufacturer led to the recommendation for the promulgation of an order prohibiting the use of points for dispensing vaccine virus. A rather extensive investigation showed that the points, as they reach the manufacturer, were frequently contaminated with tetanus spores and that, where disinfection measures were inadequate, the contamination might be carried through to the finished product. In connection with the work a standardized technic of testing vaccine virus for anaerobic contaminations was evolved and employed by a number of manufacturers.

Control of arsphenamine. Up to 1912 the arsenicals used in the treatment of syphilis had no status as biologics under the Act of July 1, 1902. On June 13, 1913, however, the Solicitor of the Treasury issued an opinion that arsphenamine "is included as one of the products the manufacture and sale of which is placed under the control of the Treasury Department." Following the declaration of war in Europe in

1914 the importation of antisyphilitic arsenicals soon reached such a low point that it became necessary for American manufacturers to make the products themselves; and it became evident that some kind of laboratory control should be exercised by the Government over their distribution. The situation was happily improved shortly after the United States entered the conflict.

The Federal Trade Commission on November 30, 1917, issued orders for licenses to manufacture and sell the product heretofore known under the trade names of "Salvarsan", "606", "Arsenobenzol", and "Arsenamin". The drug was to be sold under the name of "Arsphenamine". Rules and standards for the manufacture and sale of the product were prescribed by the Public Health Service and were promulgated by the Federal Trade Commission. The manufacturer was required to test his product by means of methods developed at the Hygienic Laboratory. Later these rules and standards were amended and additional rules and standards issued to cover neoarsphenamine.

At the end of the fiscal year, 1918, four firms held licenses for the manufacture of these products. Several hundred samples of the products were examined at the Hygienic Laboratory under a ruling requiring a submission of samples from each lot manufactured.

Control of the manufacture of arsphenamine was made possible through studies conducted at the Hygienic laboratory for the purpose of discovering a satisfactory method for the toxicological and chemical standardization of the drug. These were commenced in 1916, the previous year, and brought to a successful end in 1917.

Anthrax in shaving brushes. In the early stages of the war a number of cases of anthrax following shaving were reported to the laboratory. Circumstances pointed strongly to the use of new shaving

brushes as the source of infection and popular suspicion, in those distressing times, pictured the trouble as the work of enemy agents. In order to trace the matter, brushes used by shavers who had become infected were obtained whenever possible and bacteriological examination made for the presence of anthrax. In nearly every instance anthrax spores were isolated from the suspected shaving brushes. It was noted that cases of anthrax infection followed the use of horse hair brushes only, which led to a survey of the shaving brush industry. This survey soon developed the fact that most of the horse hair entering into the manufacture of shaving brushes was imported from the Orient, where anthrax is endemic; and that, owing to inadequate sterilization, infected hair had gone into the manufacture of brushes.

Conferences with brush manufacturers were held. As a result of these conferences and researches, regulations governing the production of shaving brushes, from the anthrax viewpoint, were recommended and adopted. A bill was introduced in Congress providing for the prohibition of the use of horse hair in shaving brushes. The bill, however, has never been enacted into law. Brush manufacturers, being in business for profit were not slow to realise the fact that the public would not buy shaving brushes liable to transmit infection but would abandon the brush-and-soap method of shaving for the shaving-cream method. Accordingly, they cleaned house as promptly as possible and the condition corrected itself to a large extent.

Poisoning by explosives. With the entrance of the United States into the World War, the prevention of poisoning among American munition workers presented a public health problem of considerable importance. Previous experience in other countries had demonstrated that the productiveness of munition plants was dependent, to a large extent, on the

prevention of such poisoning. Protection of the health of thousands of workers engaged in this industry was also a matter of much concern. Our allies, Great Britain in particular, had fortunately given this matter serious thought and considerable scientific work had been done with a view to reducing the health hazards in munition plants."

It became necessary, therefore, that the Hygienic Laboratory undertake an intensive investigation of the hazards connected with the manufacture of explosives; and, if possible, to devise a means of reducing them to a point of reasonable safety. A group of research workers was accordingly organized to pursue the work. Without loss of time the unit proceeded immediately to function.

"The most important explosives used for the manufacture of shells belong to the group of nitro derivatives of aromatic hydrocarbons, aniline and phenol. Among these nitro-compounds, trinitrotoluene (commonly called T. N. T., triton, or tretyl) was predominantly used in this country and England on a large scale."

"In munition workers various symptoms such as dermatitis, gastro-intestinal pain, constipation, bleeding from the nose, giddiness, cyanosis, breathlessness after slight exertion, anemia, and jaundice have been attributed to the toxic action of T. N. T. The symptom-complex varies with the individual. In the milder form of poisoning, which is spoken of as "minor T. N. T. sickness", there may be present cyanosis, dermatitis, nose bleeding, constipation and giddiness. The severer forms of poisoning have been divided into toxic jaundice and aplastic anemia."

To obtain the best results, the problem was attacked from two angles, viz.,(1) laboratory tests on animals, chiefly dogs, and (2) field

investigations at a large shell-filling plant employing from 7,000 to 8,000 workers, concentrating attention upon a selective group of 327 employees chosen at random owing to the impossibility of covering the entire personnel within a brief time.

"During the latter part of the war so-called paranol came into extensive use as a high explosive. It was soon realized that its handling involves certain dangers, inasmuch as it causes a severe dermatitis. The work was undertaken at the request of the Navy Department principally for the purpose of devising some means for the prevention of the skin lesions. In addition, the systemic effects produced by the substance were also studied . . . . The action of paranol on the skin was mainly studied on rabbits, although a few confirmatory experiments were made with human skin . . . . Twenty-eight experiments were made on the conjunctivae of rabbits for the purpose of studying the action on the eyes of paranol and the other substances under consideration."

"The very great increase in the manufacture and use of mercury fulminate in this country as the war went on led to an increase in the number of workmen affected. In some cases the workers were incapacitated or their efficiency reduced to such an extent that it became desirable to recommend some protective measure against mercurial poisoning and eczema. Rabbits and dogs were used for skin tests; and, in addition to the experiments on animals, 18 different co-workers in the laboratory submitted themselves to applications of 10 mg. of mercury fulminate."

The Armistice was declared before the studies on poisoning by explosives were completed, but the investigations were carried to a conclusion. Hygienic Laboratory bulletin 125 from which the above quotations are made, gives full details of the investigation.

Distribution of pathogenic organisms. It has been the custom from time immemorial for institutions to supply cultures of pathogenic organisms to other institutions and individual workers in the general interest of scientific progress. Impressed with the need of taking every precaution in war time to prevent the improper use of virulent pathogenic organisms which might fall into the hands of ill-intentioned persons, steps were taken to obviate this possibility. Identical circular letters covering the point were sent out by the Service to State and local board of health laboratories, medical colleges, and establishments making biologic products, and by the Bureau of Animal Industry to university laboratories, agricultural colleges, and other institutions related to the work of the Department of Agriculture. The result was that, before a request for a pathogenic culture was honored, it had to be certified by a duly constituted authority — usually a State Health Department.

Only one well defined case of an attempt to secure a culture for illicit use came to the laboratory's attention during the whole period of the war. A man called one day and asked for a culture of Bacillus botulinus with a plausible excuse for his request. Lacking proper credentials, his request was declined. A day or two later a Government intelligence officer appeared at the laboratory for information concerning the man, who was being sought as an enemy agent.

"The enemy in our midst." One of the most interesting phases of the laboratory's participation in activities relating to military operations was the examination of specimens suspected of being contaminated by enemy agents. Along with the rest of the country, in the early days of the war the feeling was quite general among the laboratory personnel that the whole land was infested with spies who

plied their trade not only by propaganda and the destruction of munitions, but by poisoning food and inoculating food supplies with disease organisms. The result was bombardment of the Government intelligence services with reports of food contaminations. Taking no chance, the Government operatives seized all kinds of suspected material and forwarded, or brought, the specimens to the Hygienic Laboratory for examination. These covered almost every imaginable article -- cakes, candies, confections, preserves, flour, breakfast food, clothing, court plaster, soap, bandages, chewing gum, etc. In every case these specimens were given careful examination and, with two exceptions, with negative results.

In one instance an intelligence officer brought in five packages of a popular brand of breakfast food, four of the packages unbroken, the other opened, with the statement that they were suspected of containing powdered glass. The contents of the opened package were passed through a fine mesh screen and plenty of glass particles were found; examination of the unopened packages revealed no glass. An investigation by the intelligence officers disclosed the fact that a personal enemy of the merchant had "planted" powdered glass in the food for the purpose of getting him into trouble.

The other case was tetanus in court plaster. Street peddlers of notions were as busy in gaining a livelihood during the war as they are today, and many of them handled court plaster. Bacteriological tests of a large number of samples of court plaster sent in for examination revealed the presence of tetanus spores in several specimens. This proved interesting. However, examination of samples secured from responsible sources likewise showed the presence of

tetanus spores in a few cases. After considerable investigation it was concluded that tetanus spores might gain access to open wounds by two methods: (1) accidental contamination by dirt, or (2) the presence of tetanus spores in the glue of court plaster through defective sterilization at the time of manufacture. Like anthrax in shaving brushes, the condition corrected itself. In no case was court plaster tetanus traced to malice.

On one occasion an alleged spy was brought to the laboratory under guard and spent several days here in an attempt to reveal the secret of some of the gases used by the enemy in its chemical warfare service. The man freely admitted he was a spy, which created a rather thrilling situation to the three persons connected with the laboratory who knew the object of the man's presence. Apparatus and materials were placed at his disposal and the professor of chemistry personally observed the "demonstrations". That the man was a chemist was beyond question; yet he made no progress. This raised suspicions as to his sincerity in betraying his government. The man was quartered at the Naval Hospital, and by good fortune one of the Navy alienists had an opportunity to observe him. The outcome was unexpected, though not surprising. The man was insane. He was later sent to an asylum.

Morale. Immediately upon the outbreak of hostilities, and progressing thereafter until the Armistice, a feeling of discontent appeared throughout the entire laboratory. At the time war was declared the laboratory comprised about 65 persons; of these, less than half a dozen were women. Several of the men left at once to enter the army. As military uniforms began to appear, the unrest at the laboratory increased; some wanted to don a uniform, others were

tempted to leave on the prospect of larger pay elsewhere, a few were content to remain on the job and "carry on" wherever chance threw them. With the advent of the first draft the unrest increased; the same may be said with regard to subsequent drafts.

It was expected by many that the laboratory personnel would be covered into the military service. It is safe to say that had such action been taken the morale of this institution would have been raised by a very substantial degree. As it was, it became evident early in 1917 that steps would have to be taken to preserve the organization as an efficient working part of the civilian establishment, though much of the personnel never became reconciled to this. A difficult problem faced the laboratory administration; either it would have to see an organization of value to the civilian and military health go to pieces or it would be placed in the humiliating position of retaining able-bodied men whose positions might be filled by women or by men not qualified for army service. But trained personnel were not procurable. The solution of the difficulty was, therefore, reached by securing the temporary exemption from military duty of a few especially skilled men, until women, or men not liable to military duty, were trained to the work.

By singular good fortune the laboratory was able to secure the services of women bacteriologists, competent to handle a large part of the biologics tests. And throughout the laboratory, even in some positions that marked them as adapted almost solely for men, it became necessary to appoint women. In few instances did these women fail to make good; a number of them are still on the rolls, which perhaps is a more pointed commentary than words upon their efficiency.

Upon the close of hostilities, men who had left the laboratory to enter military service were immediately reinstated; and in making appointments,

ex-service men were given first consideration. Upon the change of industry from a wartime to a peace footing a large number of men, who had not entered military service, were thrown out of work, resulting in a flood of applicants at the laboratory. In no case, however, was a civilian appointed so long as a former soldier was available. The policy of giving military preference in making appointments, in the absence of civil service eligibles, has been followed consistently for the last seven years; and the laboratory has never had cause to regret such action.

IX. MEDICAL AND PHYSICAL RELIEF FURNISHED TO VETERANS OF THE WORLD WAR.

It has been said that by reason of the sudden termination of hostilities during the World War, the United States had no perfected plans of demobilization. However this may be, the Public Health Service in 1919 suddenly and unexpectedly found itself charged with a large responsibility in furnishing medical care and relief to veterans of the World War under an act passed by Congress and approved March 3, 1919.

In order to understand the position of the Public Health Service in this important work, the legal status of that Service in relation to this work should, at the outset, be clearly stated.

The purpose of Congress in the enactment of legislation for the general care of disabled veterans contemplated something very different from the pensions system which had hitherto obtained in the care of veterans of other wars in which the United States had been engaged.

Congress had in mind a broad constructive program whereby a man discharged from the military forces, disabled, would in effect receive compensation for his disability, medical care and treatment to the point where he had received maximum benefit therefrom, and finally, in the case of residual disability, the necessary vocational re-education to fit him for some painful occupation whereby he might be enabled to earn as good a living as he had before.

The plans, therefore, of caring for disabled veterans include three major activities, namely, the rating of disability

and the payment of compensation; medical care and treatment; and vocational re-education were necessary.

The legislation enacted by Congress did not create any single new agency to discharge all of these functions but made use of existing agencies of the national government to discharge them with additional responsibility. The central agency in the performance of this important work was the newly created War Risk Insurance Bureau, and under the terms of the act (with amendments) creating this Bureau, it seems obvious that Congress intended the main responsibility for all of these functions to fall upon it, and it was given broad powers in relation to the general care of disabled veterans. This Bureau, however, was without medical and vocational agencies, so therefore the two functions of furnishing medical care and treatment and of vocational re-education were placed respectively upon the Public Health Service and the Federal Board for Vocational Education.

So far as the Public Health Service itself is concerned, under the terms of the act quoted above, this service, while it was authorized to furnish medical care and treatment to disabled veterans of the World War, it was to perform this function in reality as an agency of the War Risk Insurance Bureau. This rather peculiar legal status is worthy of comment because it placed the Public Health Service in a very peculiar and unsatisfactory situation.

Since the Chief of the War Risk Insurance Bureau, under the law, had full authority in the matter both the Public Health Service and the medical departments of the Army and the Navy and even civilian

agencies, it left the whole situation indefinite with too much dependence under the circumstances upon the will of one individual. And, as circumstances later demonstrated, it did not permit the establishment on the part of the Public Health Service of definite policies with an assured outlook or in the future. This of necessity militated against the formation of a permanent organization and interfered with development best assured to meet the needs of a situation, which in reality constituted a national emergency.

It may be noted also that the execution of the legislation required the closest possible co-operation on the part of three distinct agencies of the National Government, all placed under different administrative heads and working under laws indefinite in many respects and by no means entirely harmonious, and requiring on the part of each an immense amount of labor later in making the administrative adjustments necessary under such conditions, thus subjecting the whole work and the National Government to a great deal of criticism.

It seems wise also to note that so far as the Public Health Service is concerned, this very large responsibility was assumed unexpectedly and suddenly. This meant that the creation of an organization and the supply of all necessary medical facilities had to be done under great stress, while, at the same time, medical service had to be delivered promptly to men demobilized and scattered throughout the United States. This entailed much unusual expenditure which could not have been avoided. More careful plans and

better legislation with proper preparation would have reduced the cost materially and permitted the furnishing of better service.

It may be repeated that the public health service early in 1919 found itself faced with a very large responsibility entailing the expenditure of large sums of money to furnish medical care and treatment to disabled veterans, a great many of whom were already demobilized and had returned to their homes. The service had no accurate knowledge of the magnitude and character of the problem involved. It was without an adequate organization to cope with the problem of this kind, but was so placed from a legislative standpoint as not to have freedom of action in the formulation of plans and the adoption of permanent policies.

With these preliminary comments a brief narrative of events will give in outline the development of the situation, methods and policies adopted, important administrative changes made and the final discharge of the responsibility with the transfer of the work to the newly created Veterans Bureau.

BACKGROUND OF EVENTS. The Public Health Service is an old bureau of the National Government, well grounded in official procedure with established precedents, fixed traditions and a fine spirit. It has operated hospitals for a long period of time. These hospital activities, however, have never been very large, and at the time it assumed this additional responsibility it had in operation less than twenty-five marine hospitals with a total bed

capacity of less than two thousand, scattered in the various ports in the United States. It also had established numerous small relief stations along the coasts. All of these facilities were necessary for its regular beneficiaries. It possessed a small administrative organization for the management of these activities.

While, therefore, it had the basis upon which to expand, it is evident that to meet this very large and new responsibility its expansion would have to be not only tremendous in its scope but done with great promptness to meet the emergency.

After preliminary adjustments with the War Risk Insurance Bureau and the designation by that Bureau as the principal agency for furnishing medical care and treatment to veterans, it at once in accordance with the legislation and the money appropriated, began in March 1918 the expansion necessary to meet the responsibility.

While the law approved March 9, 1918, authorized this service "to provide immediate additional hospital and sanatorium facilities for the care and treatment of discharged, sick, and disabled soldiers, sailors and marines, Army and Navy nurses (male and female), patients of the War Risk Insurance Bureau," and appropriated a limited sum of money, about two million dollars, to acquire certain facilities, and to put the law into effect, it made no provision for the construction of hospitals to any commensurate scale.

Provision was made, however, for limited construction, the purchase of existing plants, the release to the Public Health Service by other governmental agencies of certain temporary hospitals used during the war, and authority was given to take over

leases which had been made by the Army for such purposes, as well as to lease adjacent buildings and convert the same to hospital purposes. Provision was also made for transfer from the War and other Departments such facilities as could be released from time to time. Authority was likewise granted for making contracts with civilian hospitals for the care of disabled ex-service men and women at per diem rates.

This work devolved upon the Division of Marine Hospitals and Relief of the Public Health Service, which at that time had a total personnel of half dozen or more persons. As a first step, larger quarters were sought for and secured by the occupancy of an old hospital building at 14th Street and Ohio Avenue. This building in a short time proved inadequate to house the organization necessary and a second move was made to a leased building. In a comparatively short time this building proved inadequate and finally the activities of this division were moved into temporary buildings constructed during the war at 7th and B Streets, Southwest, where adequate room was available, and these quarters were used throughout the performance of the work. These successive moves were very disrupting to the organization and seriously interfered with the work. An organization of this size functions with difficulty and by no means economically unless it possesses sufficient room for the performance of its duties.

The organization, which will be discussed more in detail elsewhere, consisted of central headquarters at Washington, hospitals and dis-

pensary stations (including dentistry) throughout the United States, an administrative field organization for the purpose of getting into contact with disabled ex-service men and women, a supply depot, an inspection service, and arrangements for co-operative adjustments of a broad character, not only between governmental agencies, but with civilian agencies as well.

Under this organization the work proceeded with a fair degree of satisfaction in spite of numerous difficulties which included repeated adjustments with other governmental agencies, changes in the law, and pending changes, both in law and in administrative procedure, numerous investigations of one kind or another, complaints of a character inherent to such a situation, political interference of minor nature, and difficulties encountered in attempting to coordinate under a bad administrative program.

Rather rapidly there was built up an extensive system of hospitals and relief stations with a commensurate organization to meet a very rapidly increasing demand in all parts of the country.

To give an idea of the rapidity of development and the volume of work involved, quotation may be made from the annual report of the Surgeon General, 1920. At the close of this fiscal year the Service, in addition to its original Marine Hospitals, had opened thirty-six additional hospitals and treated in hospital during the year 87,00 veterans with a total of 3,[illegible],000 hospital days. It had also furnished 500,000 out-patient treatments and made a total of approximately [illegible],000 medical examinations. In addition, special

three distinct agencies operating under three different administrative

Heads, was more and more sharply criticised with the result that the subject not only received attention in Congress but finally received the attention of the Chief Executive.

During the year the President called together a special committee for the consideration of the entire problem. This committee headed by General C. E. Sykes, USA, and after holding public sessions at which all interest persons were invited to express their opinions, formed a new administrative program with the idea of consolidating to a large extent the different phases of the work and placing so far as possible upon one organization the entire responsibility for compensation, vocational training and medical care of disabled veterans. The intention of this committee was to place under one administrative head all of the functions involved for the purpose of simplifying the administrative organization and producing better and results.

So far as this Service was concerned, action was taken upon the recommendations of this committee very promptly and on April 15, 1921, the Secretary of the Treasury issued an order, the effect of which was to relieve the Hospital Division of the Public Health Service of a certain share of this responsibility and to transfer the same to the War Risk Insurance Bureau.

In a broad way this order (copy attached) contemplated placing upon the Bureau of War Risk Insurance the administrative responsibility which had previously been discharged by the Hospital Division through its field administrative organization, known as the District Supervisors Organization. This carried with it the responsibility for making medical examinations which were necessary for disability ratings and the

payment of compensation as well as a part of dispensary relief. It still left the Public Health Service as an agency which would be concerned henceforth only in medical care and treatment, either in hospital or in dispensary.

The effect of this order was to make more definite the responsibility of the Public Health Service, but to required a re-organization. It also permitted a large reduction in personnel, both in the field and in the central office. Since, however, at this time, much dismantling was taking place in Congress with the evident intention of the passage of new legislation, it still left the Public Health Service in much uncertainty, faced with the difficulty of attempting re-organization on a new basis which, in all probability, was not to be permanent. Obviously, such a situation did not lead to stabilization nor to economic administration.

It also still left this Service in the very uncomfortable position of being obliged to adopt an attitude of adjustability and to make itself the instrument by which medical and hospital facilities for veterans could be increased or diminished to meet the demands of a shifting administrative organization with grave doubts as to what the ultimate result might be or where the large responsibility would be placed. It cannot be too strongly stressed that such a situation does not permit of satisfactory organization and economic administration, and very much increases the difficulties in supplying satisfactory service.

Notwithstanding all of this, the Public Health Service, with a fair degree of satisfaction, contrived to make the necessary administrative adjustments with the War Risk Insurance Bureau and the Federal

Board for Vocational Education as well as with the American Legion, the American Red Cross, and various other individual and non-official organizations so keenly interested in the care of the veteran. Indeed, it is worthy of some comment that the keen public interest displayed in those men who had served their country so well, while helpful in many ways, was at times a great source of embarrassment, an occurrence inherent in such a situation, and speaking well for the sentiment of the American people.

In their anxiety to provide immediate and adequate medical, surgical, and hospital facilities for disabled veterans some of the organizations almost lost sight of the longer responsibility of the Public Health Service as the Federal health agency. In fact they did not know of this responsibility until they came to Washington to draft legislation. Even then they did not consider it. One draft of bill introduced into Congress provided that the Public Health Service be transferred to the Veterans Bureau and made a division of it. So that the Director of the Veterans Bureau would have been not only responsible for the care of the veterans but also for all Federal health functions of the Public Health Service as well. When the officers of the Service called their attention to this anomalous position and objected to such procedure some of the legislation committee of the organization were irritated and accused the Service officers of obstructing their efforts. It was not until the Committee met under the Chairmanship of General Drain that due consideration was given to this phase of the Service work and a bill was finally drafted, which resulted in a unification

of the three functions; compensation vocational training and medical service under one direction by the creation of the present Veterans Bureau. This act provided for transfers which finally relieved the Public Health Service of practically all veteran relief.

To give an idea of the progress of the work, quotation may be again made from the Surgeon General's report; and in the annual report of the fiscal year 1931, it is stated that during the year, the hospitals of this Service were increased more than 25 per cent, and the bed capacity raised to nearly 13,000 beds with arrangements for an additional 2,000 or 3,000 beds in the near future. The Public Health Service was continuing during the year to supply practically all the medical care and attention to veterans.

Nearly 127,000 veterans were hospitalized during the year, receiving a total of 8,814,000 hospital days. Out patient treatment was furnished to about 456,000 veterans and about 884,000 medical examinations were made for veterans. About 100,000 patients were given dental treatment and various special services were furnished to a large number of patients.

During the fiscal year 1932, which saw to a large extent the termination of the Public Health Service's relationship to this work, the activities of the Hospital Division continued on a large scale, as heretofore.

This year saw several legal and administrative changes with the ultimate termination of the work so far as this Service is concerned, with the exception that the Marine Hospitals, always operated by this Service, were still open to the reception of such veterans as should

be referred to them.

The Service began the fiscal year 1932 with the same organization and the same responsibility as outlined above. Early in the year, however, Congress passed an act known as the economy act, approved August 4, 1932. This legislation, as indicated above, and the results of such dissatisfaction at the administrative organization which had arisen of the general care of veterans. It created for this purpose a bureau under the President known as the United States Veterans Bureau (to replace the War Risk Insurance Bureau), and charged that Bureau with full authority and full responsibility for all activities relating to ex-service men and women. Evidently it was the intention of Congress to place in one organization and under one individual all the responsibilities connected with this highly important matter.

This act provided that under executive order, hospitals operated by the Public Health Service could be transferred to the Veterans Bureau for future management, control, and operation, but for some time after the passage of this act, the Public Health Service continued in the operation of hospitals as heretofore.

As noted above, the gradual transfer of responsibility to the War Risk Insurance Bureau as the central agency had already been begun by the transfer of the District Supervisors organization and the partial transfer of dispensary relief which was directly connected with this organization. Indeed, after the transfer of this organization, the question of the operation of dispensary relief involved

both the Public Health Service and the War Risk Insurance Bureau in a great many embarrassing situations with the result that under an order of the Secretary dated December 8, 1921, effective February 1, 1922, various dispensary relief stations created by the Public Health Service had already been transferred, leaving the Public Health Service still in full control of the operation of hospitals for the relief of veterans, and placing on the War Risk Insurance Bureau the medical examinations and out-patient relief.

Criticism directed against the divided responsibility continued and finally the President in accordance with the legislation quoted above and upon the recommendation of all parties concerned, signed an executive order effective May 1, 1930, transferring to the United States Veterans Bureau all of the veterans hospitals operated by the Public Health Service, leaving that Service in the future to operate only its own marine hospitals.

It is evident that the transfer of the hospital system was the last step in the severance of the Public Health Service from the large responsibility which it had carried for three years in connection with the medical care and treatment of veterans of the World War.

This step had been anticipated and all arrangements had been completed to make the transfer, and the large hospital system which had been operated by the Public Health Service was transferred immediately to the Veterans Bureau.

There were turned over to that Bureau 97 hospitals, of which 44 were operating at the time. These hospitals in round numbers had a

total bed capacity of 17,[illegible] and contained about 1[illegible],000 patients. The operating personnel numbered over 9,000 doctors, dentists and attending specialists, about 11,000 nurses, and with other classes of employees made a grand total of about 41,000 persons. The patients undergoing treatment in contract hospitals under our supervision were also turned over to the veterans Bureau at this time. They numbered about .

The central office of this organization was transferred immediately and directly to the Veterans Bureau in Washington as an administrative organization, and there was reason to say that the efficiency of this organization was not impaired in the process. It is a matter of pride to this Service to feel that the administrative organizations created in this work were transferred in all cases unimpaired in efficiency to other agencies where they continued to function along the same general lines as were laid down by this Service.

On May 1, 1[illegible], therefore, the Public Health Service was left with the same responsibility which it had carried previous to the assumption of this larger responsibility, and during this period of time its usual regular hospital and relief work had tremendously increased.

The transfer of the hospital system under executive order (only attached) involved not only a number of properties and an administrative organization but concerned a good many other matters as well. Chief among these was the question of valuable supplies which had been

accumulated from other governmental agencies and turned over to the Public Health Service under law and administrative orders and in which the Public Health Service had an equity. The adjustments regarding these valuable supplies were difficult to make but were finally concluded with satisfaction to all parties concerned.

For some time after the period of transfer, it was impossible for the Public Health Service to reduce its personnel in accordance with its apparent responsibility by reason of a great many matters for adjustment which were necessarily left over and the adjustment of which required some service.

One list of these was the work performed by the Public Health Service for veterans in the extra-continental parts of the United States and some of this work is still carried on by the Public Health Service. The places concerned were the Hawaiian Islands, Panama Canal Zone, Porto Rico, Virgin Islands and the Philippine Islands.

The Public Health Service throughout the year continued to exert every effort to improve the efficiency of its hospital organization, always with the idea of good service at reasonable cost. It is believed that at the time of the transfer of the hospitals the organization was working at its best and the Director of the Veterans Bureau took pains to state on more than one occasion that this hospital service had given entire satisfaction to his Bureau.

During the fiscal year 1933, it is stated in the Surgeon General's annual report that there were treated in hospital 72,000 veterans, to whom were given about 2,500,000 hospital days. Dis-

ponsary relief was afforded to nearly 1[illegible],000 veterans who were treated 400,000 times, and nearly 102,000 physical examinations were made of these patients.

From the same report it may be stated that during the association of this service with this work for the three years beginning in March 1919, there were cared for in hospital a total of more than 575,000 veterans, to whom were given about 14,000,000 hospital relief days. In the out-patient clinics there were given about 7,000,000 treatments and there were made about 1,000,000 physical examinations. It is probably no exaggeration to say that the representatives of this service during this period made personal contact with something like 1,000,000 individual ex-service men and women, to whom was rendered service of some sort. This work is additional to the work done for the regular beneficiaries of the service during the same period.

After this brief outline of events, an attempt will be made to discuss briefly the important features of the work in some detail, together with critical comments on the entire situation for the purpose of deriving from this experience such lessons as may be possible for the future guidance of those concerned.

ANALYSIS OF THE SITUATION.

The situation confronting the Public Health Service in this responsibility presented two major aspects -- the meeting of immediate demands and the planning to meet ultimate demands.

Immediate Requirements

The immediate requirements have been more or less outlined above. At the time the legislation was passed, demobilization had already begun and was proceeding rapidly. The personnel of the military forces, most of whom were unused to military discipline, now that the war was over, without further prospects of active service, were urgent about their immediate release, and this feeling was probably reflected by the Americas people generally, so that pressure existed to demobilize military forces rapidly. The Army and Navy, no longer charged with the responsibility for the care of sick, and unable in any event to remove the sick to certain designated hospitals as they could under military discipline, were beginning to break up their organization. The Public Health Service, as stated, with a small organization and very limited facilities, without knowledge as to ultimate demands, and with sick and disabled men now [illegible] asking relief from all parts of the United States, was obliged under the law to meet these demands with such facilities as could be obtained. This was done to a large extent by the employment of civilian hospitals and medical agencies under contract, by the enlargement of marine hospitals as far as the law would permit, by the use of such facilities as could be used which were being abandoned by the Army and Navy, and by the rental, and modification where necessary, of more or less suitable buildings located to meet the demands.

Insurance and compensation as well as vocational training require careful medical examinations and medical supervision of one kind or another, in order to carry out the program outlined for the benefit

of the veterans. Arrangements therefore had to be made promptly for making medical reports in order that men might obtain compensation or treatment. This feature of the situation should not be overlooked since it means in reality that there is a medical basis for the entire program of benefits to the veteran.

Ultimate Requirements - Hospital Construction.

While meeting the immediate requirements, the still greater problem of the character and magnitude of the work with adequate plans to meet ultimate requirements had yet to be faced.

A great deal of time and effort were expended in the attempt to determine the number of patients and the character of medical facilities which would be required to meet the demands. Finally, in conjunction with the War Risk Insurance Bureau the Public Health Service was able to present in Public Document No. 1 of the Sixty-sixth Congress, a comprehensive survey of the question with a constructive program of hospital construction to meet the ultimate needs of the disabled veteran.

This document, a copy of which is attached, need not be reviewed in detail. It attempted to survey the entire field and to determine with some accuracy the exact needs of disabled ex-service men and women with regard to hospital facilities, both in the extent and the character of the same, in order that these men and women might receive the proper hospital and medical care and attention which the law comprehended. This document indicated that within two years from the date of its presentation, in the fall of 1919, there would be needed for patients of the War Risk Insurance Bureau, the following hospital beds:

General medical and surgical	7,250
Neuro-psychiatric	11,060
Tuberculosis	12,450
Total	30,760

It was anticipated that the "end of the load" at least for neuro-psychiatric and tuberculous disorders would not be reached for some years.

It estimated that years would be required for necessary construction and equipment of hospitals to meet this need, a total appropriation of eighty-five millions of dollars, and the draft of a bill was offered which would appropriate this sum of money for this purpose. The bill contemplated, however, that this money should be expended in annual installments extending over a period of five ending June 30, 1925.

This service was subjected to a great deal of criticism for the presentations which was then regarded as a rather pretentious program. Moreover, it was rather generally felt that the facilities which had been provided during the war for the medical care and treatment of soldiers and sailors could be made use of very readily and very satisfactorily in the care of disabled discharged soldiers and sailors at the termination of the war.

It was not clearly appreciated that the war program for the care of sick and disabled would by no means be converted into an adequate and satisfactory system for the care of sick and disabled persons under peace conditions. It should be pointed out that the entire arrangement of medical and hospital facilities for the war period were based upon military discipline, that is to say, upon the absolute authority to transfer patients and place them under care and treat-

ment at such places and at such times as the military authorities should deem wise and necessary.

Obviously, this was impossible with men demobilized and under peace conditions. This is a point of much importance and needs to be stressed, although it is quite obvious upon reflection.

At all events, Congress did not deem it wise to appropriate this money or any part of it for hospital construction for disabled ex-service men and women. After much discussion, a compromise bill was finally offered devoting the expenditure of thirty millions of dollars, but again Congress did not deem it wise to appropriate money for this purpose at the time. In retrospect, it is significant to note that the magnitude of this problem as foreshadowed in Public Document 1441 was more or less verified by subsequent experience. Making due allowance for discrepancies which might have been expected and for developments which could not readily have been anticipated, it may be truthfully said that this document indicated clearly and with more or less accuracy the hospital needs in the proper care of sick and disabled ex-service men and women if these patients were to receive the care and medical service which, in the judgment of the best medical minds, was necessary for their restoration to health and which could not be satisfactorily given in other than suitably constructed Government institutions.

Under the law, and with no plans and no program for hospital construction, the Public Health Service was forced into a program of providing both for the immediate and for the ultimate care of disabled

veterans by the creation of temporary facilities of an unsatisfactory nature, expensive in their upkeep and the subject of a great deal of criticism. These temporary facilities, after creation, often had to be abandoned and better facilities sought, all of which tended to increase confusion and costs.

It is probably still a question somewhat difficult of determination as to whether the delay in the construction of hospitals did not in the end create a larger expenditure than that estimated by the public health service in public statement, with the additional difficulty that the facilities were not available when most urgently needed.

While exact figures are not available, Congress ultimately did appropriate many billions of dollars for the construction of suitable hospitals after the expenditure of large sums of money for the creation of temporary and unsatisfactory facilities and the necessary abandonment of the same.

Admittedly, the problem was not without its difficulties and the reluctance in Congress to appropriate large sums of money for this purpose can be readily appreciated. The Government was faced with tremendous financial difficulties and naturally Congress hesitated to add to this responsibility unnecessarily.

Moreover, other questions came into consideration, especially questions concerning the use of already existing government facilities. For example, after demobilization, both the Army and Navy undertook the care of demobilized disabled veterans without subjecting them to the usual military discipline. Also, the national homes for disabled

Volunteer soldiers, excellent institutions constructed largely for institutional care however, seemed to offer a method of furnishing hospital facilities without the expenditure of large sums of money, although later events proved the wastefulness of the Public Health Service that to convert such institutions to hospitals would practically be just as expensive as new construction. However, this and many other circumstances introduced elements of uncertainty into a problem with which none had had experience, and which offered many serious difficulties involving the expenditure of large sums of money at a time when the National Government was already deeply engaged financially.

ORGANIZATION AND ADMINISTRATION. The organization formed by the Public Health Service and the administrative methods adopted indicate how the problem was met and successfully managed. Its many features will therefore be discussed briefly under various organization sub-heads.

It seems pertinent at this point again to emphasize the very uncertain position occupied by the Public Health Service in this responsibility from a legal standpoint. And again to point out the necessity of constant change both in organization and in administration in order to meet rapidly changing conditions. This service was forced by circumstances to adopt a policy of adjustability which contained neither to efficiency nor economy. And yet, with it all, in retrospect it may be advisably stated that the service, from the first, had a very clear idea as to the ultimate objective and a good grasp of the methods by which this objective could be attained. It

is to be said that since this was a responsibility additional to its ordinary responsibility, the Service was so placed that it could, to a large extent, assume a detached point of view, and perhaps in that way make better judgments. Now the Service always had the attitude of desiring to do everything helpful for ex-service men and women, at the same time clearly realizing that this responsibility was probable of a temporary nature, and would, without injuring the integrity of the Public Health Service, ultimately be transferred elsewhere. So that while the situation had its difficulties, it also had some compensations.

The organization as formed comprised in general a central organization for supervision and the supply of material and personnel, with a field organization which consisted of relief stations and hospitals for making medical examinations and giving treatment, and an administrative organization for making contact with the demobilized veteran and coordinating the relief work in the field, and in the Public Health Service Bureau.

It should be noted in passing that this large organization was created by the expansion of an old, long existing, official organization and was based on a Service already experienced in official methods and with a good spirit. This is a point of great importance because the existence of this nucleus permitted tremendous expansion with a degree of safety not fully appreciated. All expansion was based on a foundation of long experience and good morale. For this reason the Public Health Service was able to assimilate personnel, create activities and adopt administrative methods which would otherwise have proven difficult, if not impossible.

Central Office. The headquarters organization, as previously noted, underwent many changes, although none of these changes seriously interfered with the outline of the organization. They represented simple adjustments to meet changing local and administrative conditions. As the problem developed it was necessary to make only changes to meet changing conditions in the problem itself.

The essential features of the organization and administration of the central office were a chief, under the Surgeon General, with an executive staff and the grouping of certain essential activities into coordinating divisions, which were ultimately designated as Sections and as Units.

The Sections, of which in the final organization there were four, were major administrative features, and the Units were coordinated under these Sections for the purpose of cooperating to obtain the desired end.

It should be recalled that the function of the Hospital Division was to supply medical examinations and medical care and relief in hospital or in dispensary. The hospitals in general were divided into three classes -- general medical and surgical, tuberculosis, and neuro-psychiatric. Since there of necessity many subdivisions, but for purposes of administration, this grouping proved satisfactory. Then there were a number of miscellaneous functions, of an important nature, which did not properly belong in these three major Sections, so that there was necessity for creating a fourth Miscellaneous Section. The various Units will be obvious in the later discussion. They represented certain essential hospital activities of sufficient importance and complexity to re-

quire some sort of administrative head in the central office.

The coordinating adjustments and arrangements between these various administrative groups present nothing of peculiar significance. As in all organization and administration, the coordination of so large an administrative group required much effort, but was accomplished satisfactorily.

This particular phase of organization and administration perhaps deserves comment, because it is always the most difficult feature of any organization to secure satisfactory coordination among various individual administrative groups. It is inherently a matter of difficulty and can be achieved only with continuous effort, despite the desires of the individuals in charge of the various groups to assist towards this end.

Without going into details, therefore, the attached administrative chart will show the outline of the organization, the essentials of which were the supervision, under a chief and executive staff, by four major sections and several coordinated units, of all field activities of the Hospital Division. The three sections concerned with the hospitals were the backbone of the organization and their business was to supervise the multiplicity of details concerned with the furnishing of medical care and relief in the field, of the coordination of the various units in the Central Office, and field activities towards the desired end. This type of organization proved satisfactory.

Such functions as may be included under the headings "Personnel", "Finance", "Inspection", and "Supply", were independent of the Hospital Division, but working in close cooperation with this organization,

to attain the objective. Such organization, while it might have offered some difficulties, had great compensations and proved, in experience, adply flexible to meet all conditions. The Public Health Service always had to keep in view the integrity of its own organization which had been created and maintained many years by Congress for the performance of certain specific work. And it could not afford to do otherwise than graft upon this organization the organization necessary for the discharge of this special and temporary responsibility. It may be added that no embarrassment and no confusion resulted from this fact. The compensations gained, far outweighed any small difficulties encountered. It cannot be too much stressed that the stability and dependability of rapidly created organization of considerable magnitude depended in a large extent upon its being established upon an old experienced organization.

The various Units of this organization operating under four major sections were reconstruction, which included physio-therapy, and occupational therapy, Dentistry, Laboratories, including x-ray, Nursing, Dietetics, Statistics, Maintenance, (construction, repair etc.) and a group of miscellaneous Units concerned with affairs of somewhat less importance.

As will appear in the discussion of field activities, this central office has to manage medical care and relief from a great many different angles, and the situation was by no means simple. The correlation and coordination of all the various forms of relief and medical examinations with the cooperative adjustments necessary required the most detailed and careful supervision. An attempt has been made to show that contact and to be made with the disabled veteran, medical examinations furnished both for the War Risk Insur-

ance Bureau and the Federal Board of Vocational Education, treatment arranged for, either in hospital or in dispensary, assistance rendered in making out proper claims, and determining the soldier's individual status, and care taken to see that he was furnished not only the necessary medical attendance but also various other attentions intimately associated therewith, and facilities for doing all of this had to be created rapidly and under pressure.

Section of Neuro-Psychiatry. This section was concerned with administrative problems relative to the examination, care and treatment of neuro-psychiatric patients. Those activities related to the development of temporary and permanent special hospitals, the establishment of special wards in general hospitals, the development of out-patient care and treatment, examinations and reports, the use of contract hospitals, and their inspection, and the development of a nursing and a social service organization in connection with the care and treatment of this class of patient. It was also concerned with the broader features of hospital construction, organization and administration, supervised the care of all neuro-psychiatric patients of every class no matter where under treatment, laying down general policies, and discussing an economic administration. It was also deeply concerned with an attempt to secure a personnel, medical and otherwise, properly trained for this class of beneficiary and to make arrangements for the instruction of suitable personnel for this particular special line of work.

Perhaps no single class of patient was the cause of so much trouble and so much criticism as the neuro-psychiatric patient. He presents peculiar and difficult problems, the solution of which is by no means easy.

In general, these patients were classified into four large groups, namely diseases and injuries of the central nervous system, psychoneuroses, epilepsy, and psychoses. Hospitals had to be classified and services arranged in accordance with this grouping, and this necessitated the transfer of patients, a problem often frequently presented special difficulty, especially in view of the absence of any national commitment law.

Section of Tuberculosis. This section was engaged in activities quite similar to those of the Neuro-psychiatric Section with regard to another special class of cases, namely, those suffering from pulmonary tuberculosis, and these patients offered also peculiar difficulties and required special hospitals.

This Section was charged with the administration and responsibility of all of of these special hospitals and with the development of institutions specially adapted for this class of case. Here again hospitals had to be individualized because certain types of cases would do better in one institution than another, all dependent upon varied circumstances.

Here again difficulty was experienced frequently in obtaining medical and other personnel properly trained for the supervision of this class of case, and courses of instruction were inaugurated and carried through on more than one occasion.

It is worthy of comment that at one time five attending specialists, men of recognized ability, visited the tuberculosis hospitals of this Service and made a survey of them. Their studies were of importance in the administration of these hospitals. This Section was charged with the general supervision of the care of all cases

of pulmonary tuberculosis wherever treated and was responsible for the administration of all agencies concerned therewith, in regard to both efficiency and economy.

Section of Medicine and Surgery. This section was charged with the general administration of all hospitals devoted to general medical and surgical cases.

Here again, facilities had to be established to meet special needs, and it was a matter of difficulty to transfer patients to those places where they could have the best facilities. Indeed, this difficulty was felt at all times because patients were not subject to transfer without their consent and this was not always easily obtained. There was necessity of developing facilities in a great many different hospitals which might rather have been centralized. Facilities, however, for general medical and surgical cases are more easily obtained than those for the other groups and general hospitals can be found throughout the United States where satisfactory service is rendered.

Every effort was made in the administration of these hospitals, as in all hospitals, to establish high standards of professional care and treatment, and every effort was made to secure personnel which could perform the special services necessary in a satisfactory manner. This offered many difficulties, but well known medical and throughout the United States proved themselves very cooperative and very considerate in this regard.

Special efforts were made to establish high standards of surgical service and a competent surgeon at one time was detailed to visit each of the general hospitals and remain long enough to determine the class of service rendered. It is gratifying to report that his survey disclosed standards which, on the whole, met with his approval.

In this work, as in others, the question of securing proper personnel, while not so difficult, still was not without its trials, and courses of instruction for various purposes were carried out.

Out Patient Relief. The Out-Patient or Dispensary Relief was largely carried out by this section, in close cooperation with the other two sections mentioned above and with the District Supervisors' Organization.

Out-Patient care and treatment and the development of a dispensary program was a matter of very great importance since in the dispensaries very largely took place the numerous medical examinations necessary for the rating of compensation, the determination concerning vocational training, and the treatment of minor affections as well as the after care of many patients who had been hospitalized.

A broad program of development was outlined which separated these dispensaries into three general types, and efforts were made to develop these types all over the United States to meet the needs of the ex-service men. The variation in the three types determined upon was one very largely of size and equipment to meet the needs of certain geographic localities. In some places smaller dispensaries would serve the purpose. In other places, highly developed and elaborate organizations were necessary. In other words, it was a development of what is known as "group practice", and was so arranged that a veteran could at one place obtain complete examination and all the service necessary.

The personnel necessary for this purpose were not easily secured, but through the cooperation of the general profession, satisfactory

arrangements were made and excellent dispensaries were established.

Section of Miscellaneous Activities. The organization of this section was found necessary in order that certain important functions not falling within the scope of the other three major sections should receive proper supervision.

Its activities concerned arrangements for various meetings and the custodianship of the records of such meetings; the making of necessary arrangements for the opening and closing of hospitals, and elaborate processes and one requiring close attention to a great many details; supervising the issuance of circulars and cooperating with the Veterans' Bureau in the issuance of joint circulars concerning the business of the two Bureaus; compiling joint information for the Veterans Bureau and hospitals and other activities; making investigations regarding standard requirements for hospitals; discharging certain functions with regard to miscellaneous allotment of funds; handling leases of hospitals and other properties; supervising inspection reports; revising blank forms and other miscellaneous minor matters.

Unit of Dentistry. This highly specialized service necessary not only in the general care of patients but of particular significance with regard to the veteran on account of many injuries sustained to the jaws and teeth, required supervision by men especially trained in this line of work.

This unit, therefore, while not one of the major administrative divisions, carried large administrative and professional responsibility, since upon it devolved questions of policy as to the scope and character

of dental work is to be given, the securing of the necessary personnel to do this work, and cooperation with all hospital and dispensary activities in order that patients might receive the necessary dental care and treatment and that proper oral surgery could be performed.

This involved the supervision of the purchase of a great deal of expensive and special apparatus and the organization and standardization of dental clinics, both in hospitals and in dispensaries all over the United States.

It also required the establishment of a rather elaborate system of records and the employment of a number of civilian dentists for the performance of the work contemplated by the veterans' relief law.

This work grew rapidly and required the expenditure of large sums of money but adequate reasons were given for the work performed and for its economic performance. The work done in these clinics was more uniform, more satisfactory, and more economic than could have been otherwise performed.

Unit of Laboratories, Roentgen-ray. This important function, while common to all hospitals, is so highly specialized as to require some central supervision with regard to the purchase of expensive apparatus, standardization of technique and the securing of trained personnel.

It offers nothing of peculiar significance, but for its development some specialized supervision was necessary in order that the service given might be placed on a proper basis.

Unit of Reconstruction. This unit was concerned with physio-therapy and occupational therapy and was established for the purpose of giving general supervision to these highly specialized forms of treatment which had been most developed during the war period.

Their activities concerned the establishment of these forms of therapy in the various hospitals with the standardization and purchase of the various highly specialized types of apparatus needed in the administration of this form of treatment which was considered of special and peculiar value.

This unit was also very closely concerned in the selection of types of prosthetic apparatus and policies relating to the purchase of the same. Some of this apparatus is very expensive, namely artificial arms and legs, many of which were required and purchased.

This unit assembled, and to some extent trained, highly specialized personnel for the administration of the special forms of treatment under their supervision. In enormous number... treatments were administered annually and this entire service required close and careful supervision with the establishment of certain very definite general policies.

Unit of Nursing. This unit was created for the purpose largely of securing necessary female nursing personnel required in the hospitals and dispensaries, and its great responsibility was the creation of a large corps of nurses under proper supervision and discipline with proper standards.

The lack of nurses was frequently embarrassing and efforts were required at times to secure this necessary personnel as well as to

train recruits for his necessary service. It is worthy of comment that at one time in 1921 the dearth of nurses became so acute not only in the Public Health Service but all over the country, as to require a special recruiting program which resulted very satisfactorily.

Cooperation was established with many nursing societies and many women of prominence in the nursing profession with great satisfaction. At the time of the transfer of the hospitals to the Veterans' Bureau there were transferred about 1500 nurses under a superintendent. This unit also during the performance of this work organized a corps of nurses for the marine hospitals which is still in existence and doing excellent work.

Unit of Dietetics. This unit, like others, being engaged in a special service of great importance in all hospitals, was organized for the purpose of giving close supervision to the question of foods and feeding. This item always totals quite [illegible] of the cost of any hospital and on the efficiency of the administration depends to a large extent the morale of the hospital and the proper treatment of patients therein.

It was the duty of this unit to establish a satisfactory dietetic service in all of the hospitals and to give such supervision of the same as would insure the purchase and serving of good food properly prepared, and at a reasonable cost.

The policy was adopted of securing trained female dietitians for this work. At the time the hospitals were transferred to the Veterans' Bureau there were about 150 trained dietitians on duty, and their work was performed with satisfaction. Under their supervision, the feeding in the various hospitals was carried on in a manner on the

whole satisfactory.

Unit of Statistics. This particular unit was established to take over the supervision of custom records and to compile certain important statistics not only as matters of record but of great use for administrative purposes.

It not only supervised admissions and discharges to hospital and dispensary and prepared a number of very important reports, for administrative purposes and supplied a wealth of important information to the Veterans' Bureau and to other agencies.

It also conducted itself in the compilation of a nomenclature of diseases, established a punchcard system for compilation of statistics, published a weekly [illegible] report, prepared extensive charts, charts and other graphic forms of information of great importance.

It was really a record unit and while it performed a very useful service, it was never developed to the extent it should have been properly to compile the important and valuable statistics concerned.

Unit of Maintenance. This unit was established for the supervision of questions concerning engineering, construction, repair and related questions.

The rapid acquirement either by lease or otherwise of so many properties necessitated central supervision of this important matter.

This unit operated in more or less close contact with the Supervising Architect of the Treasury Department in the transaction of its business.

It performed work of the very greatest importance in acquiring

properties, preparing leases, making settlements, sketches, plans, supervising repairs and the distinguishing of surveys with reference to these various functions.

It maintained an elaborate set of records regarding all of the properties which were under the jurisdiction of this Service for the time being and undertook to supervising them with regard to their general physical condition and upkeep.

Cooperative Relationships. By reason of the administrative organization created by the law, there was of necessity many official cooperative relationships necessary. And by reason of the nature of the responsibility placed upon it many unofficial or semi-official cooperative relationships were developed.

Officially the chief of these relationships had to be made with the War Risk Insurance Bureau and the Rehabilitation Division of the Federal Board of Vocational Education. It was necessary that both of these organizations should themselves maintain small medical organizations for the purpose of performing a certain intrinsic medical functions, chief among which were the careful examination and estimation of medical reports of disabled veterans for the purpose in the case of making judgments as to compensation and in the other for determining not only the necessity for but the character of vocational training.

Cooperation with these intrinsic medical groups was maintained in the beginning by a very good arrangement of having the Public Health Service supply the medical personnel for the performance of these respective functions. Later on, and in certain difficulties, the War Risk Insurance Bureau created itself an intrinsic medical organization and the result was not so satisfactory, although feasible. It

is evident that close cooperation among these various groups was a necessity and a great deal of criticism was made of delays in the receipt of medical examinations from field officers of the Service by these two agencies, which in the end were found to a large extent to be unjust. Cooperation in this matter was attained more successfully perhaps with the Federal Board of Vocational Education than the War Risk Insurance Bureau.

The closest cooperation at all times had to be maintained with the War Risk Insurance Bureau by reason of legislation which vested the final responsibility in that Bureau. For this time, some difficulty was experienced in maintaining good cooperation, especially in the management of certain field activities wholly by District Supervisors' organization. Finally, a system of issuing confidential orders proved quite effective. That is to say, certain classes of orders were not effective unless approved and signed personally by the Surgeon General of the Public Health Service and the Director of the War Risk Insurance Bureau.

These cooperative relationships extended throughout the field organization and unless they were maintained closely and heartily, results were unsatisfactory. It may be fairly stated for the field officers of all organization concerned that they, probably more than the Central Office, were successful in creating and maintaining an excellent feeling of cooperation throughout this work, difficulties were met with and in some places friction was apparent, but on the whole it is a matter of surprise that three different official agencies should have maintained such good cooperation between their various representatives in their field activities.

Among the unofficial or semiofficial agencies with which important cooperation had to be maintained, were the American Red Cross, the American Library Association, and the American Legion, and other veterans' organizations. These were not all, but these were the chief agencies.

The American Red Cross which had during the war maintained very important relationships with the Army and Navy in a helpful spirit, transferred these relationships to the Public Health Service when it began the care and treatment of veterans, and rendered a most satisfactory and helpful service in numerous ways.

During the entire time that the Public Health Service carried this responsibility, the American Red Cross, through its representatives, discharged all of the functions pertaining to social service, recreation, and morale activities in the various hospitals, outpatient offices and wherever necessary. Many similar agencies contributed greatly in the performance of this work, but all of this work was coordinated under the American Red Cross and the entire organization contemplated their assumption of the direction of all such activities.

It might be stated also that the entire expense of this excellent service was borne from their funds and the expenditure involved was by no means a small sum. This arrangement was made by them and they were entirely satisfied with it. It is presumed that it placed them in a position of prestige and permitted a greater freedom in the exercise of their functions than could have been done under any other fiscal arrangement. The other Agencies involved, also expended large sums of money in services rendered and due credit should be given to them

contemplated that it

assumption of the direction of all such activities.

all for their very helpful assistance.

It should be mentioned also that the American Red Cross, being a semi-official agency, was able by reason of its peculiar status to discharge functions and to cooperate with national agencies in a manner hardly possible to other similar organizations. The representatives of the American Red Cross, in hospitals and elsewhere, had a very definite status which was officially recognized.

The American Library Association likewise transferred its war work from the Army and Navy to the Public Health Service and served a very useful purpose in establishing and maintaining libraries and library activities in the various hospitals which were established. This service was rendered with excellent judgment and fine cooperation. It was the opinion of all that this particular service contributed in a very material way to improve morale in the hospitals where veterans were undergoing treatment. For a time while the expenditure for this work was borne by the American Library Association and when their funds became depleted, for a time the American Red Cross assumed this expenditure in order that such an important function might not lapse for lack of funds. Ultimately the hospitals fell heir to the very excellent libraries which had been created, and they still remain the properties of the various hospitals which were established for veterans during the period under discussion.

The relationships maintained with the American Legion were important. There were other organizations representing ex-service men and women, but the American Legion was regarded then, and is still so regarded, as the chief organization representative of the veteran.

It was,natural and proper that the desires of the veterans as expressed through this organization should receive every consideration, and attempts were always made to maintain with this organization a lovely spirit of cooperation.

It should be mentioned, however, that during the formative period of the American Legion and other similar organizations, it was by no means always easy to maintain a proper spirit of cooperation. The spirit of the American Legion in its relationships was not always pleasant. The entire organization was so locally based however that the central office did not have as full control of its various posts as one might imagine, and difficulties were frequently even experienced with individual posts, officered by men of rather radical tendencies, which the central offices of the American Legion seemed unable to control or modify.

It should be stated also that our relationships with the central office of this organization were by no means always easy to maintain on a pleasant footing. There was very naturally, and perhaps properly, a feeling on the part of the American Legion that their desires and their ideas concerning the care and treatment of veterans were paramount, and the apparently best that having come expressed their desires through their national representatives such desires should be complied with regardless of many other considerations. Indeed, many conferences, of not altogether pleasant nature, occurred, and many instances not altogether agreeable and even productive of unpleasant publicity could be recorded. In spite of all this, it is fair to state that a fair degree of cooperation was maintained by the Public Health

service with these organizations during the continuance of the war.

The Public Health Service, however, felt obliged to take a very firm position with regard to the attitude of the American Legion and other veterans' organizations and on more than one occasion pointed out in unmistakable terms that while it was the desire of the Service to cooperate with such organizations in the heartiest possible spirit, nevertheless it could not be forgotten that the responsibility of the Service was to Congress and not to the American Legion or to any other veterans' organization. Of course, no other position could possibly have been taken and yet there were reasons to think that the assumption of this position did not entirely meet the approbation of the representatives of the American Legion.

There are good grounds for believing that the separation of the hospitals from the supervision of the Public Health Service was made at the request of the American Legion, and it may be believed that this was done largely by reason of the position assumed by the Public Health Service. Moreover, the American Legion felt, and justly so perhaps, that the care of veterans was too big a thing to be placed under the supervision of any of the old organizations charged with other responsibilities. They doubtless felt that the care of the veteran was responsibility large enough and important enough to justify the creation of an official organization charged with this responsibility alone and with no other. And the creation of the Veterans' Bureau is probably the result of this feeling on their part.

It is not to be forgotten also that all veterans' organizations were so placed as to make their desires known and felt in no uncertain

way. There was naturally and properly a great deal of popular sentiment on all questions pertaining to the veterans so that complaints and criticism on the part of the veteran not only obtained wide and favorable publicity but met with very sympathetic response on the part of the entire American people, a fact creditable to the heart of the American people but by no means always conducive to efficiency and economic administration of affairs pertaining to their welfare. Specific instances could be mentioned where great feeling was aroused and perhaps unwise official action provoked by reason of the sentimental regard with which all such questions were received by the American public. This will be again mentioned later but is a point of great importance because it cannot be overlooked and must be taken into serious consideration always in attempting to handle problems pertaining to the veteran.

Boards and Conferences. It is felt that in the organization formed for this work Boards were perhaps used to great advantage and some of them are important enough to receive brief mention. Certain boards were in existence or were created within the Bureau of the Public Health Service itself which contributed an important share to the administration of this problem. The chief of these was the "Service Board" which, under the Surgeon General, in a broad manner, gave consideration to general service policies. This Board was frequently of great benefit.

Another important board created at the time was the "Hospital Board" which was composed of several members representative not only of the Public Health Service but also of the War Risk Insurance Bureau. This Board was composed not only of medical officers but also of construction engineers, and the function of the Board was to give consider-

ation to properties which might be acquired by lease or otherwise for the purpose of establishing hospitals or relief stations. This Board performed a most useful function and to its efforts is due in great measure the clean record of this service with regard to the acquirement of properties in any way or manner without any justification for suspicions that such properties might have been acquired in irregular ways or under undue pressure from any source.

It is obvious that under the conditions efforts should have been made by many people to dispose of unsuitable properties in one way or another, and it is also evident that the judgment about such properties is too much of a responsibility to rest upon one individual. The Hospital Board took this responsibility and discharged it with great efficiency. Its decisions were not overridden and to its efforts is due the success which attended this important responsibility. The Board was controlled by no motives except to secure the most suitable places at the most reasonable price, and made its judgments regardless of pressure or opinions from any other source whatsoever.

Another Board, still in existence, created at this time through the efforts of General Charles Sawyer, was the Federal Hospitalization Board, which was composed of the Surgeons General of the Army, Navy and Public Health Service and representatives from the Homes for the Disabled Volunteer Soldiers, St. Elizabeth's Hospital (Interior), the Director of the Veterans' Bureau and the Commissioner of Indian Affairs.

This Board, which was approved by executive order, performs general advisory function with regard to medical care and treatment of veterans and considered all sorts of questions which in any way pertained to this matter. While its decisions were regarded to a certain extent as advisory, yet the Board, having been created with Executive approval,

its decisions were readily made mandatory when desirable.

It would be useless to go over the many questions considered by this Board even if space permitted. They concerned all matters pertaining to the care of the veteran, from the selection of hospital sites, the discussion of hospital plans, the standardization of hospital personnel and supplies, compensation rates, the coordination and cooperation of various organizations, the rules and regulations governing patients, the regulations covering medical care and treatment, and scores of other similar questions all matters of record in the activities of that Board.

One other Board is of sufficient importance to merit mention and this was a Board created by the Secretary of the Treasury for the purpose of making recommendations as to the expenditure of some approximately eighteen billions of dollars which had been appropriated by Congress in 1919 for the related construction of hospitals for the care of the veteran.

This Board, under the supervision of the Secretary, remained as a permanent organization for a period of many months, having made not only a set of general recommendations for the Secretary, but also specific individual recommendations with regard not only to hospital sites but to plans of various kinds, and it also concerned itself even with the supervision of actual construction work. It is understood that this Board was created by the Secretary for his protection. The existence of this Board created considerable friction with the newly-created Federal Bureau and its Director, and many serious questions arose which were difficult of adjustment.

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the Director of the Veterans' Bureau felt perhaps that the expenditure of these big [illegible] millions of dollars should have been placed under his jurisdiction, but the legislation had been passed previous to the creation of the Veterans' Bureau and the responsibility for the expenditure had been placed upon the Secretary, who discharged it through this board, and this board doubtless remembering the Secretary's views, felt that when Congress had charged him with this responsibility, it was his duty to discharge it in a manner which appeared best to him. Naturally, such a situation created some friction. One could hardly expect otherwise, but ultimately the work was finished with satisfaction to all parties concerned.

The conferences mentioned in the results of this section, which were of importance, were the calling together in conference of the heads of field units.

The Public Health Service called together on occasions the district directors of the various districts throughout the United States, and these meetings were of tremendous significance and benefit to all concerned. A great many highly important matters were discussed and settled with satisfaction which could not have been achieved otherwise.

The other big conference was the calling together under the direction of the Federal Board of Hospitalization of a large conference composed of the medical officers in charge of all hospitals who were giving care and treatment to veterans, including Army and Navy hospitals as well as the hospitals of the Homes for Disabled Volunteer Soldiers. The program for this large meeting was prepared

with a great deal of care and many important official persons appeared before this board to talk on various subjects. There were also many meetings where the discussion of general topics among the officers themselves took place and the discussions ranged the entire field of hospital activities.

A voluminous record of these meetings was published and it is only just to say that the amount of money expended in calling together this conference was easily justified by the cooperation gained. Nothing contributes so much to cooperation and efficiency as a meeting together face to face of the representatives of the central office in each green and of the activities in the field, where so many matters can be freely discussed in all their ultimate details.

In discussing organization and administration, there are certain matters relating to this subject affecting all administration units, particularly of the central office, upon which comment might be made under various headings.

Regulations. The new responsibility of the Public Health Service in this work and the new legislation authorizing the same required of course not only a revision of the regulations of the Public Health Service, but extensive additions thereto and a complete set of regulations covering hospitals and relief stations of the service were prepared and issued by the Secretary with the approval of the President early in 1920.

These regulations, in addition to many other important matters outlined the administration of all the various activities released

to the care of re-service men and women and included a complete revision of the organization and administration of hospitals, relief stations, and the district supervisors' organization.

Purveying Depot. The question of a service of supply became an urgent matter. This problem was met by the expansion of the small service of supply which had always been maintained by the Public Health Service under the designation of "Purveying Depot".

Need was attached to this administrative unit two other functions of importance, one of accountability for public property and the other the supervision of transportation. In order that a system of accountability for public property might be established and since it was deemed a function of great importance, a rather elaborate system of records was instituted in order that public property might be carefully supervised and conserved.

The question of transportation meant the general supervision of motor equipment, of which there was or could be a great deal. Most of this was received from the Army as excess war supplies, and practically no purchases were made. There were, however, an enormous number of details required to supervise this motor equipment and keep it in proper condition.

The Purveying Depot, originally a part of the Hospital Division, later was made independent of the Hospital Division and placed under the direct supervision of the Surgeon General. There were established in the Hospital Division other arrangements for a proper liaison with this important work.

Finances. The question of money is fundamental, and naturally under the circumstances and condition, this question was more than usually acute.

At the time the work was undertaken, the Bureau of the Budget was not in existence and funds were obtained after submitting the annual estimates to the Secretary and securing his approval, by appearing before the House Committee on Appropriations. The Bureau of the Budget began to function during the last year of this work.

In general, it may be stated that throughout this work the attitude of Congress was one of open sympathy. The Appropriations Committee apparently felt that the most involved in rendering medical care and personal to the veteran was an unknown quantity, and in general the members of Congress understandably perhaps the cost of such service. The result was that no appropriations were made which would do more than cover a small period of time, and the Public Health Service was directed to return to the Committee from time to time to secure additional funds when necessary. The funds were always granted as asked, but the additional appearances before the Committee to make a plea for necessary funds was of course a time-consuming process.

There was the further difficulty that in attempting to discharge a responsibility, the character and magnitude of which during the first year was not known and perhaps not fully appreciated, trustworthy estimates could not be made with certainty. Money was appropriated only as needed, this caused serious embarrassments and often grave difficulties.

It may be recalled, for example, that the estimates made for this work by the Hospital Division for the first year, that is for the fiscal year ending June 30, 1930, amounted to about sixteen millions of dollars. This was reduced by administrative authority to four millions of dollars, and there was appropriated purely three millions of dollars, yet the total expenditures for that work approximated twenty millions of dollars. The annual appropriation climbed in succeeding years to upwards of forty millions of dollars.

It may be noted that the medical care and treatment of veterans whether under the Public Health Service or under some other organization, is only a small part of the total expenditure required in the general care of the veterans, compensation being, from a financial standpoint, a matter of far larger significance.

The Public Health Service also experienced difficulty with regard to the question of appropriations. Originally, in making appropriations, Congress left in existence the old appropriations which had previously supported the Hospital Division, and supplemented these by a lump sum appropriation. This resulted in a great deal of financial confusion. Obviously, the keeping of books under such circumstances became a matter of extreme difficulty. Indeed the matter became so difficult finally that an appeal was made to the Appropriations Committee that the law might be changed. And this was ultimately done, the old appropriations being discontinued and lump sums appropriated for the work of the Hospital Division being placed in the lump sum. This relieved a great deal of difficulty and embarrassment and resulted in much better financial system.

It may be mentioned also that previous to this change and in the

beginning, moneys were appropriated directly for the use of the Public Health Service and appropriations for the care of the regular old line beneficiaries and the veterans were pooled, no requirement being made as to the separation of these expenditures. The Sundry Civil Bill, which became effective July 1, 1[illegible], made a very definite separation which regard to appropriations and expenditures, and all moneys appropriated for the care of the veterans were thereafter not given to the Public Health Service but to the War Risk Insurance Bureau, the law providing that the War Risk Insurance Bureau should make allotments to the Public Health Service for the discharge of this responsibility. At the time, this created a great deal of administrative difficulty and confusion, but in retrospect, it would seem certainly a wise step. Since the responsibility by law was placed on the War Risk Insurance Bureau, it would seem only logical that the money likewise should be placed in the hands of that Bureau. This necessitated a careful separation of the expenditures made in the medical care and treatment of veterans from those made in the medical care and treatment of regular old line beneficiaries, and this distinction was clearly drawn in the law.

It has been explained above that the function of finance in the Public Health Service Bureau devolved not upon the Hospital Division but upon a separate division of that Bureau created for the purpose, and the fact that the Hospital Division had assumed a new and large responsibility did not change this organization. There was in consequence necessity for an entire re-organization and expansion of the financial division of the Public Health Service Bureau to assist in meeting this new responsibility, and this change was promptly made.

such an organization, as has been stated above, offered no particular difficulty or confusion, indeed, on the contrary, it was decidedly helpful.

The Hospital Division, however, felt the urgent need of creating financial arrangements within its own organization for the discharge of certain definite functions. While the Hospital Division had no authority for the creation of an organization which could in any sense concern itself with the definite fiscal operations pertaining to the disbursements and accounts of appropriations; and indeed while it had no desire to establish such arrangements, yet there was obvious necessity for some organization which would permit the Hospital Division to discharge its administrative functions in an economical manner. Evidently this could not be done without some very definite financial information, particularly as to the unit costs of operating hospitals and dispensaries.

The Hospital Division, therefore, created a system of cost accounting in hospitals and dispensaries and adopted a method of making definite quarterly allotments to all individual activities in the field or elsewhere. Such a system permitted the Bureau administrative authority to determine with accuracy the question of economy in administration and permitted also a basis of expenditure upon which estimates might be based and administration improved. The adoption of this system proved from an administrative standpoint highly satisfactory and undoubtedly tended to economy. It also produced in the minds of the Appropriations Committee a greater feeling of security than an executive office could account with accuracy and precision for its expenditures in terms of unit costs.

The system is still in existence, not only in the Public Health Service but in the Veterans Bureau and has unquestionably established its worth as sound in experience. The system, with some changes, it is stated, has also been adopted by other governmental agencies in the operation of their hospitals.

Personnel. The supervision of personnel involved in this work devolved upon another division of the Public Health Service Bureau, namely the Division of Personnel and Accounts. It was necessary, therefore, wisely to establish cooperative arrangements with this division in order to handle the question of personnel.

Some comments on this particular point however may be made from the point of view of the Hospital Division and the larger aspects of the question left to the comments of the particular division so charged.

Broadly speaking, this personnel might be divided into three general classes, professional, administrative, and general. With the exception of commissioned officers, all of this personnel was necessarily employed through the Civil Service Commission in accordance with the law, and the necessary cooperation had to be maintained with that Commission.

The professional personnel is represented by doctors, nurses, dietitians and aides for physio-therapy and occupational therapy. There existed the regular commissioned medical personnel of the Public Health Service as a basis.

The Public Health Service in its organization, as always, had a flexible arrangement whereby it could increase its medical personnel advantageously by the employment of doctors on a civil service basis

designated as "acting assistant surgeons", "interns", and other special designations. This arrangement, however, did not prove entirely suitable to the discharge of the kind of responsibility placed upon the Hospital Division in the veterans work. Difficulty was encountered in securing the services of the type of medical men required for the work unless they could be placed upon some better established basis.

Shortly before this responsibility was assumed, Congress had passed a resolution authorizing the creation by the Public Health Service of a corps of reserve commissioned officers. These officers were granted temporary commissions and the legislation provided that they would not be on active duty any number of such officers except in case of national emergency, but general authorization was obtained in the appropriation acts to utilize the reserve officers in the hospital work.

This legislation offered an excellent arrangement whereby officers who were being discharged from the Army and Navy and whose qualifications were well known could be placed satisfactorily. All applications for reserve commission were carefully scrutinized, a board was organized to pass judgment on them, and arrangements were made with the Army and Navy whereby the confidential records pertaining to the efficiency of such officers could be made available if necessary.

In this manner there was secured a very large number of additional medical officers, who, as the result, not only proved their worth but also developed rapidly a good spirit of loyalty towards the Public Health Service and discharged their duties with satisfaction and discretion. The fact that the services of medical officers who had served with the veterans during the war would thus be secured was an additional advantage of considerable value.

It was fortunate that Congress granted authority for the use of re-

serve, commissioned officers. Without such authority it is doubtful that a sufficient number of qualified medical officers could have been recruited for this duty. Their Army and Navy experience had discovered to them the value of an officer's commission. They understood its value and position. That it added to the corps' spirit there is no doubt and furthermore after they were transferred to the Veterans Bureau and their commissions taken away from them the demoralization which has resulted has caused the Director of that Bureau to ask for a reorganization on the basis of the rank, pay and privileges of the commissioned medical officers of the United States Army, which is practically the same as they had in the Reserve of the Public Health Service.

With regard to other professional personnel, many difficulties were encountered, chief among which was the inability of the Public Health Service to grant these professional personnel an appointment which carried on any established basis and which could permit regular gradations according to capacity and length of service with compensation commensurate with their duties and personal ability.

To achieve a result of this kind meant in reality the establishment of corps with a regular organization, discipline, and an established compensation which automatically would increase any circumstances and conditions demanded. The Public Health Service attempted to establish organizations of this kind with regard to both the professional and administrative employes. It seemed a very logical and sensible thing to do and it undoubtedly promoted efficiency and contentment. These regulations were approved, but due to either connection-

tionaries or their [illegible], there were one or two prominent men in Congress who vigorously objected to the establishment of such organizations without special act of Congress although the Comptroller of the Treasury ruled that the regulations were in accordance with general Federal statutes. By their efforts these arrangements were finally disrupted, greatly to the discouragement of the [illegible].

In spite of these difficulties and many other delays of a similar nature, the Medical Division, in cooperation with the Division of Personnel and Accounts, was able to recruit and organize an adequate corps of medical officers, nurses, dietitians, and aides, and to secure from this personnel faithful and loyal service.

The question of administrative personnel offered very similar difficulties. There were certain functions, particularly in field activities, where the necessary administrative personnel with peculiar training was necessary, and to recruit personnel of this character which was both loyal and efficient proved by no means easy of accomplishment in view of the inability of the Public Health Service to offer such people compensation of an established nature with regular promotions and protection, and adequate commensurate compensation. This is a point of tremendous significance in attempting to organize a large personnel for the performance of specialized work.

It is a matter of some significance that in all of this work, political pressure and influence in both the matter of appointments and increases in salaries, while present, was not of sufficient significance at any time seriously to embarrass the situation.

The question of payrolls and disbursements for salaries became an urgent matter and this was solved very largely by the consolida-

neuro-psychiatrists, one [illegible] of them, as I know, of national prominence, made most unpleasant criticisms throughout this work without being able to offer constructive and feasible suggestions as to the betterment of a service admittedly difficult to render, especially in the absence of well equipped specialized hospitals which were necessary in the care of this class of patients.

General Inspection. The question of inspection in an organization of this kind in the establishment of an official organization of this sort under the peculiar conditions then existing, was a matter of paramount significance and importance.

The Public Health Service, previous to the assumption of this new work, did not find it necessary to create any special organization for the purpose of making inspections. This duty had devolved upon carefully selected officers, and by them had been performed with satisfaction. But with the tremendous expansion which took place and especially in view of acute conditions, the creation of a general inspection service became immediately urgent. This inspection service was originally created in the Hospital Division, but due to complaints on the part of the War Risk Insurance Bureau which were entirely logical and consistent, the General Inspection Service was made independent of the Hospital Division, reporting directly to the Surgeon General, and most of its work was done on this status, with the necessary cooperative arrangements existing. The class of work done by this organization comprehended in general personal inspection by its representatives of all of the activities of the Hospital Division by competent men, with regularity, for the purpose of learning whether the general instructions and regulations governing their administration were being at all times properly complied with.

The attitude of the general inspection service throughout was most excellent and this is a point of great importance. Stress should be

laid upon the fact that inspecting officers should approach any activity in a spirit of friendly cooperation rather than one of criticism. In other words, it is the duty to invite the hearty cooperation of the officers in charge of the various activities thus to prevent their antagonism, and it may be said truthfully that the relations existing between the inspecting officers and the officers in charge of various activities were at all times excellent, that the results of these inspections were welcomed by officers in charge of all activities and that the results of such inspections contributed greatly to increased contentment and efficiency.

Carefully formulated and carefully kept records in work of this character are of the utmost importance, and the General Inspection Service exercised great care and discretion in this matter. Their records were ample and very carefully formulated, so that in case of necessity they proved absolutely dependable and on many occasions they were of inestimable value in the protection of the organization and administration of the Hospital Division. The expense of such an organization was amply justified by experience.

In addition to the General Inspection Service which covered only a definite field, there were certain questions which required more or less special inspections for the purpose of control. It is obvious that no General Inspection Service, for example, could very readily attempt to establish or criticise professional standards, and it is almost equally obvious, upon reflection, that a General Inspection Service upon rarely attempt, except under very unusual circumstances, to determine many other matters insignificant in themselves, but often productive of bad

morale which occur in all groups of human beings and which frequently represent gossip, or trivial personal friction among the employees. Nevertheless, these simple occurrences are frequently of great significance and productive of unpleasant results. Such things, as a rule, could only be uncovered by a rather definitely organized information service working with the methods of secret service, and this has no part of the duties of the General Inspection Service.

Such matters as this must be discovered by special representatives at various times and of course, the matter of professional standards in the various departments of hospitals and dispensaries could frequently only be determined by men thoroughly familiar with such professional methods. This frequently meant many inspections which were expensive, and yet which were justified by conditions. It is a dice matter of administrative judgment to determine just how frequent and how extensive inspections of this character should be made. Too much inspection of activities is to be deprecated and too little is to invite inefficiency.

It should be stated that the activities of the General Inspection Service covered not only official hospitals but were of necessity extended to civilian hospital which under contract were caring for large numbers of veterans. It was deemed wise and necessary that all such institutions should come up to certain well recognized standards, and on the General Inspection Service devolved the duty of determining whether such standards were complied with. It is a pleasure to record that civilian hospitals, as a rule, offered no objection to this inspection and very gladly complied with the constructive criticism of the inspecting officers.

It may be noted at this point that a great deal of the time of the

Inspection Service was devoted to complaints originating generally from patients who had been under care in hospital. From experience, it was found that large percentage of these complaints originated with the same group of individuals, and the records of the Inspection Service would show that certain individuals in whatever hospitals or under whatever circumstances, would invariably make complaints which, upon investigation, were not based on fact. This particular feature of the inspection work was a matter of great importance because, as noted, the veterans could easily obtain publicity and the public did not appreciate always the true significance of affairs. The Inspection Service has stated, that as all their investigations directed toward complaints, less than [illegible] of such complaints were found to be based on any fact at all, and of that number a very small percent were found to be justified.

Field Activities. The field activities comprehended in general, three things, namely hospitals, dispensaries, and general administration represented by the organization of district supervisors. The administrative organization may be taken up first.

District Supervisors. The organization known as the district supervisors organization was an administrative field organization created for the purpose of de-centralizing many Washington activities and of getting into contact in the field with disabled ex-service men and women in order that they might receive consideration and the benefits of the law if found entitled to the same.

It was early appreciated by the Hospital Division that without some organization of this character, the responsibility placed upon them could

not be discharged, and very soon after the passage of the law, this matter received earnest consideration with the result that a careful memorandum was drawn up outlining the need of such an organization and the character of the same, with broad suggestions as to the character of organization which should be developed for this purpose. This memorandum received the approval of the Surgeon General and of the Secretary and was promptly put into effect.

This organization comprehended the division of the continental United States into fourteen well defined districts with the establishment in some large city in each of these districts of central office used which was placed an officer designated as a district supervisor. It further contemplated the development of this organization by the establishment of such sub-agencies as might be necessary in each district. The districts established followed previous districts which had already been established by other governmental agencies, and these divisions were followed by the Public Health Service simply as a matter of cooperation.

The Federal Board for Vocational Education had established these districts and the Bureau of War Risk Insurance also, but only to a limited extent by reason of the limitations in whole which did not permit them to follow the same example. On the whole, the districts served fairly well and were perhaps originally based on population, but some of them were widely large for good administration.

The Public Health Service in creating this organization did not feel justified in the beginning in creating anything more than a tentative organization with the idea of assuming developments to see whether this form of organization would properly meet the needs of the situation. The original memorandum therefore comprehended the model of comparatively small office space and a very limited personnel under the charge of ex-

perienced officers who were given both written and verbal instructions both as to the nature of the problem and its developments. A very brief experience demonstrated the necessity for and the suitability of such an organization and clearly indicated the need for its rapid development. Through small beginnings these District offices grew rapidly and enormously and performed highly useful functions. In fact, these agencies formed not only the means by which the public health service but also to a large extent the War Risk Insurance Bureau was enabled to get into close touch with ex-service men and sound in the field to secure for them those services which the law evidently intended they should have. Their development is indicated by the fact that originally starting with office space of less than two thousand square feet each, in a few months many of these were occupying spaces of forty thousand to fifty thousand square feet with a very large personnel and numerous sub-agencies. Moreover, as they developed and as their usefulness became apparent, by arrangements with the Bureau of War Risk Insurance, the Federal Board of Vocational Education and the American Red Cross, a policy was adopted of securing office space in some building where not only the Public Health Service but all these other agencies could be likewise housed. And along with these, or in close proximity, there was also established a first class well equipped dispensary with all of the necessary facilities and personnel to permit full and careful medical examinations.

By this arrangement, ex-service men and women were enabled ultimately to secure all of the services necessary in order properly to make their claims of to receive treatment by visiting one building of group of buildings in a city. It is obvious that such an administrative arrangement

was of great significance and assisted ex-service men and women who came to make the necessary contacts to establish their claims or secure the necessary care and treatment.

There is attached hereto a map showing the outline of these various districts, which, as stated, were involved due to finances. The district headquarters were as follows:

District No. 1	Boston, Mass.
District No. 2	New York City
District No. 3	Philadelphia, Pa.
District No. 4	Washington, D. C.
District No. 5	Atlanta, Ga.
District No. 6	New Orleans, La.
District No. 7	Cincinnati, Ohio
District No. 8	Chicago, Ill.
District No. 9	St. Louis, Mo.
District No. 10	Minneapolis, Minn.
District No. 11	Denver, Colo.
District No. 12	San Francisco, Cal.
District No. 13	Seattle, Wash.
District No. 14	Dallas, Tex.

The usefulness of this administrative organization in the work of the War Risk Insurance Bureau became finally a matter of so much importance to that Bureau that changes were made in the law which permitted them to take over this organization but after its successful operation by the Public Health Service it was in the latter part of 1921, by executive order, transferred to the War Risk Insurance Bureau and later was taken over by the Veterans Bureau. This organization is still continues to function. It is a matter of congratulation to the Public Health Service that it should have created this very efficient and very successful piece of administrative machinery.

It may be noted that the administration of this organization grew naturally even though until the hospitals had been established, having begun

in a small tentative way, it was developed as circumstances required largely through the method of the issuance of circular letters and only very broad features of organization were placed in regulations. Even, however, the organization was more or less complete, a carefully drawn set of regulations was compiled for the government of an organization which had grown to large proportions and which was the agency for the expenditure of large sums of money.

In addition to the districts in the continental United States, there were also established various districts in the extra-continental United States, in the Philippine Islands, Panama Canal Zone, Porto Rico, and the Hawaiian Islands. Some of these activities are still being carried on for the Veterans' Bureau. It may be mentioned also that several times it happened that the Public Health Service, through its branches in Europe, was able to offer services to returning patients, claims and location in Europe at the time.

It would be difficult to define, except in general terms, the activities of the district supervisor organizations and to show the highly important work accomplished by this organization. In general, it may be stated that as it developed it became the agency for furnishing not only medical care and treatment to ex-service men but for making contact with them and not only supplying them with all sorts of necessary information but assisting them in the preparation of their papers and in securing necessary documents to establish their claims. It also arranged for medical examinations and had under its supervision the facilities for doing the same. It established contact in the field with the representatives of the War Risk Insurance

Bureau, the Federal Board of Vocational Training, and the American Red Cross. It had under its supervision all the various hospital facilities insofar as being able to refer patients for treatment; and it had under its close supervision a large number of sub-committees and dispensaries wherever it could get into contact with veterans throughout every district and secure for them with a minimum of effort on their part those things which the law intended they should have. And in formulating all of these facilities, it exerted a tremendous moral influence by making the ex-service man feel that the national government was looking after its soldiers and not leaving him to flounder by his own efforts in attempting to secure those things which the government had promised him. This organization also undertook many other things also, for example, as supplying prosthetic appliances of various kinds and of performing all sorts of services for the care and general attention to ex-service men throughout the United States.

Perhaps one of the most important things done was the establishment in each district office of a carefully thought out system of files with complete record of every ex-service man and woman with whom the organization came into contact. This filing system, as was recognized in the beginning, possessed the utmost importance because upon it depended not only the original claims of the veteran, with all accessory papers, but his future progress and the whole adjustments of his compensation and of his medical care or vocational care. A great deal of thought and time was expended upon this filing system and upon the index cards which gave really access to it. This is important enough to direct special attention to its value.

It may be mentioned as a concrete instance of the value of this organization and of its tremendous [illegible] that the central office in Washington, as often happened, would be advised by, say, some member of Congress that a [illegible] of a certain name was reported ill of a certain disease at some remote place and that this individual was a veteran, when the Public Health Service, through this organization and with a simple Telegram [illegible], in the course of a few hours, not only report that this man had been visited, but on investigation had been found to be suffering with a specific disease, proven to be a veteran, and had been hospitalized in [illegible] and [illegible] a hospital.

It must be visualized also that an ex-service man or woman in some remote section of the United States suffering from some disease or injury incident to military service could, within a short distance of his own home, [illegible] into contact with representatives of this organization when he would find himself [illegible] of, all of his claims properly made out, investified and given the service that he has [illegible]. Care was taken that the existence of this organization should be made known through advertising methods.

It is obvious that this sort of service was of inestimable value in the discharge of the responsibility which Congress had placed upon the Public Health Service and other agencies engaged in this work.

Dispensaries. At the outset it should be understood that the word "Dispensary" or "Out-Patient Office" does not convey an adequate idea of the character of dispensaries which it has necessary to establish in the discharge of this work. The [illegible] is employed and organized simply for the purpose of giving out-patient care and

reatment, but the dispensary system created for this work had to comprehend
or its major function the making of physical examinations upon which claims
or treatment, vocational education and compensation were to be based. It
an be realized without comment how important such a function could be in work
f this character.

The entire dispensary system as it developed was organized in connection,
owever, with hospitals or with the District Supervisors organization. The District
upervisors had the utmost need for service of this kind of high character. The
act that dispensaries were to be found in hospitals was a mere matter of conve-
nce or reduction of expense. Oftentimes the convenience of a location to ex-
rvice applicants was of greater importance than anything else and this was always
pt in view.

It should be also recalled that this dispensary system had to comprehend not
ly general physical examinations but also more highly specialized nervous and
ntal examinations, since there were a great many sufferers of this kind making
plication. There was also the special class of pulmonary tuberculosis which re-
ired special arrangements, and there were many sub-classes of patients suffering
om various types of fractures of bones with bad after effects, mouth and jaw
juries requiring reconstruction, nerve injuries of a peculiar character requiring
rrective procedures or appliances of special kinds.

All of these various types of patients were applying for treatment and pro-
sion had to be made not only for more or less accurate diagnosis but also for
e proper forms of therapy to meet these various conditions, necessitating coopera-
on from the general medical profession by men who were specially trained in these
rious important classes of work.

It was a general principle in the establishment of these dispensaries
at the more highly developed and larger staffed and equipped places
ould naturally be located in the largest centers of population and the

dispensaries which were provided in the more sparsely populated districts were not so elaborate in equipment and not so well staffed, not only because this was expensive but because also the services of the necessary medical personnel could not always be secured.

It should also be recalled that careful distinction in connection with these various dispensaries were developed with considerable rapidity and care was taken to see that they were equipped with proper apparatus and as good men as could be secured for the performance of this highly important phase of the work, not only for purposes of examination but also for purposes of good dental treatment. It is too obvious to require comment that this system of dispensaries was always an integral part of the District Supervisors organization and as they developed they were organized in that manner, being under the direct supervision of the district supervisors, by whom they were created. It is unnecessary to add also that a great deal of the medical personnel used in the performance of this work was of necessity attending specialists engaged either on part time duty or on a fee basis. In no other way could highly specialized medical personnel be secured, and it was demonstrated from experience that this arrangement was quite feasible.

Mention has been made earlier in this report of the three general types of dispensaries which an attempt was made to develop, and it need not be repeated that these types represented only differences in size, equipment and staff, depending upon their location and the population adjacent thereto.

This section of the report may be closed by again calling attention to the tremendous importance of the organization and development of these

dispensaries, largely for purposes of medical examinations of a comprehensive and impartial character [illegible] the whole system of treatment and vocational education and rehabilitation necessarily tested, and it should not be forgotten that these medical examinations had to be repeated periodically for adjustments in compensation rolls. Their importance cannot be over stressed. The character of the examination, its dependability, and its comprehensiveness count everything.

Hospitals. Enough has been said above to indicate in a general way many of the important features of the hospital situation. It may briefly be re-stated that money did not exist for the purpose of constructing hospitals and Congress was unwilling to make appropriations for this purpose. In order, therefore, to secure the necessary hospital facilities, the public health service had to depend upon several methods. Its own marine hospital system was used so far as circumstances would permit. The original bill placing this responsibility on the Public Health Service provided for certain limited facilities and even purchases of property and some construction. The places which had been used by the Army and Navy during war times, on being abandoned, were, when satisfactory, taken over and made use of. Congress had authorized the transfer of leases entered into by the Army and Navy of various hospital properties should they be found useful, and some of these leases were taken over. Under the legislation also it was possible to lease places and remodel them for hospital purposes. This was done in many cases. Finally, contracts could be made with any civilian hospital to care for veteran patients at a per diem rate. In the beginning, this method was extensively used. It subjected the Government to a great deal of criticism, and as fast facilities existed and

it was felt that in these hospitals the veterans would get at least as good treatment as any person in the community who happened to fall ill.

In this way, there was built up rather rapidly an extensive system of hospitals which lacked a great deal of being satisfactory, but at least afforded such facilities as were possible for veterans and indeed offered treatment as good as could be secured in the average civilian hospital. [illegible] hospitals revealed their designation. [illegible] hospitals were at first called Public Health Service Hospitals and later designated as 'Veterans' Hospitals'. All were improved and it is worthy of record that the highest watermark in the development of these hospitals was 84, this does not mean that the Public Health Service has in operation at one time a total of eighty-two hospitals. By reason of the unsatisfactory legal arrangement it was necessary to acquire such facilities as were available and then gradually to abandon them as better facilities became available. By reason of criticism over the deficits policy to create as rapidly as possible government hospitals and governmental facilities in order that veterans might be withdrawn from civilian hospitals under contract.

Gradually, as the years developed, the number of men under treatment in civilian hospitals increased and those under treatment in governmental hospitals gradually increased. It would seem unwise perhaps to adopt the policy of not using civilian hospitals under contract because, superficially, it appears to be a satisfactory and economical way of handling a problem of this character. Experience demonstrated, however, quite conclusively that such was not the case. Patients under treatment in civilian hospitals proved to be exceedingly difficult to manage in many ways and their supervision from a governmental stand-

point offered many serious difficulties. It was the combined judgment of all with experience that these patients deserved and required first-class governmental hospitals for their care and treatment. Much of the difficulty lay in the question of compensation and allowances, with the necessity for a proper type of medical examination upon which to base such allowances. The discipline of patients also created a great deal of trouble.

The organization of the hospitals of this service in the past and treatment of veterans does not offer anything very noteworthy in hospital organization and administration. The general principles of such organization and administration were applied with some variations as were necessary to meet the peculiar needs of the situation, and the organization developed proved entirely satisfactory.

In general, the hospitals were divided into hospitals for general medical and surgical cases, hospitals for neuro-psychiatric disorders and hospitals for pulmonary tuberculosis, with many necessary subdivisions. In addition to this, for purposes of uniformity of administration the hospitals were grouped in three classes according to size, namely, hospitals of one hundred beds or under, hospitals of one hundred to three hundred beds, and hospitals over three hundred beds. This was found necessary in constructing an organization mostly from the point of size. Internal administrative arrangements of the various types of hospitals differed in non-essential particulars, but the general organization throughout conformed to definite well-understood periods.

The question of personnel has been outlined in other parts of this report. It needs only to be mentioned again that the necessity for securing competent personnel to perform all of the various activities

of such a complex organization as a modern hospital was urgent and the difficulties were large. And it not seen for the existence of some law which permitted the appointment of medical officers in a reserve corps, the problem would have perhaps proved even more difficult. And the fact that personnel could be secured who had had experience during the war with the Army or Navy proved a great aid in the assembling of a personnel with some experience in hospital work.

It may be mentioned also that the creation of a dental department and the establishment of a dental dispensary in all hospitals was found a necessity. Careful plans were laid in the development of the dentistry that first other equipment should be supplied, and many were fortunate in securing a high grade personnel for the performance of this important function. Experience demonstrated here, as elsewhere, the dissatisfaction of attempting to handle dental work through civilian dentist under contract; and many very unpleasant experiences resulted from attempting to do work of this kind in this manner. Indeed, many cases were finally submitted to the Department of Justice where gross fraud had undoubtedly been perpetrated.

Comment should again be made on the very cooperative attitude of the general medical profession in rendering assistance in this work, and some of the best known medical men in the United States placed their services at our disposal as attending specialists either on a nominal salary or on a salary totally inadequate for the character and amount of work performed by them. Without their assistance, certain kinds of professional work would have been impossible, and with their assistance, the standards were raised to a point impossible unless the services of highly specialized men could be made available.

The creation of a Dietetic Department in each hospital under trained female dietitians proved to be highly satisfactory. Nothing so much contributes to the contentment and morale of a hospital as good food properly prepared and served. This was realized from the beginning and every effort was made to furnish a good ration which would be generous and palatable. The cost of this ration did not prove excessive and compares very favorably with the ration cost of other hospitals.

For reasons of economy, a great many efforts were made on the part of the Public Health Service and on the part of each administrative authority to standardize as much as possible hospitals and hospital care and treatment. A great deal of time and effort was expended on this problem. Indeed, effort of this kind was often expended by many persons on the same problem, and it presents many and peculiar difficulties. It is perhaps unfortunate, but it is nevertheless true that hospitals are rather sharply individualized organizations which do not readily lend themselves to any rigid process of standardization because many of their problems present many individual peculiarities which must be met.

Perhaps more was done with regard to the standardization of personnel in relation to numbers employed than in any other single feature of standardization, and this did not prove satisfactory. The standards suggested in all cases were much lower than those of the average civilian hospital of the same type. And all such standards had to be regarded as largely tentative and very flexible, or otherwise individual hospitals would suffer in the process. This particular point meant a great deal to an administrator, who as a rule is not

thoroughly familiar with medical matters and hospital management, but it is believed perhaps unwise to establish rigid standards of this character. It is realized that from an economical standpoint and for purposes of administration some such standards must exist but they should always be of a very flexible character.

The standardization of equipment is a somewhat different matter and permits more satisfactory results but even here where standardization concerns scientific or technical apparatus and appliances the matter is one of great difficulty. Here again hospitals are more or less rather individualized and one hospital will require certain types of apparatus which are not satisfactory in another.

One feature of the hospital situation deserves special comment. The rapid establishment of new hospitals largely with new and untried personnel under pressure, with the attendant circumstances concerning this situation, inevitably creates a situation possessing serious elements of instability, which, in a complex organization like a modern hospital, is always a menace and experience proved that this menace at times becomes an actuality. High administrative authority always felt a sense of uneasiness over the possibility of such a situation, and unusual watchfulness was observed in the supervision of these hospitals as they were opened. In spite of all of this, on a few occasions occurrences took place which were, to say the least of it, unpleasant, and to say the most of it, were scandalous or disruptive publicity with the necessary administrative disciplinary action sometimes resulting in the closure of the hospital, and practically always resulting in the transfer of a large part of the personnel, including

official organizations, its answer was that these patients were patients of the Veterans' Bureau and that the public health service was willing at any time to carry out any instructions regarding discipline in its hospitals which might be issued by that bureau. But that bureau and other official agencies as well were unwilling to issue such instructions, being well aware that it would be impossible to enforce them. In the judgment of the public health service the solution of this problem was simply to await a more favorable line when sentiment regarding the veterans was not so keen in the public mind, and this judgment was probably wise.

These statements do not seem to imply in a sense whatever that these patients were bad patients as difficult to manage under any ordinary circumstances, but under the peculiar conditions, it was more than human nature could stand, and the reaction of this kind was entirely similar to the reaction which would have occurred in any group of individuals placed under similar conditions. Moreover, the large majority of these patients, indeed perhaps 90% of them, were quite easy to manage and gave no trouble. It was the vociferous minority who created most of the trouble and many of these were men whose mentality was certainly not entirely normal. They represented a type which might have given trouble under any circumstances.

It may be mentioned that here the hospitals came into contact with a post of the American Legion which happened to be officered by men of common sense and judgment, the assistance of this post in maintaining discipline among the patients proved to be invaluable. It is regretful to state that there were very few such posts which apparently were willing to lend such assistance. On the contrary, many of the posts only made matters worse by imposing an attitude of criticism and complaint

which was not justified.

As a part of what might be called discipline among patients, the question of transfers from one hospital to another proved to be a very complicated and difficult one. A certain percentage of patients of roving disposition continually desired to be transferred from one hospital to another, and these requests were often strongly backed by political influence of a kind not easy to avoid.

Obviously, requests of this kind could not be met in all cases, both by reason of discipline and by reason of needless expenditure of public funds. The Public Health Service, after careful consideration of this problem, adopted a very firm policy which was maintained throughout without exception. This policy contemplated the transfer of patients only under two conditions, namely, first, where the medical officer in charge of the hospital in which he was undergoing treatment would certify that the transfer of the patient to some other hospital was necessary for his medical treatment, and full reasons had to be given for such an opinion; second, where the patient was thought to be fatally ill and still able to travel, his request for transfer to some hospital near his home was always complied with, both for reasons of humanity and reasons of economy. This general policy was believed to be sound, and experience has so proved, although it was in no sense easy to maintain it.

One other circumstance associated with discipline is of sufficient importance to be noted, and that is the payment of compensation to patients in hospital. This report does not attempt in any way to criticise the policy that was adopted by the Veterans' Bureau or to offer any constructive suggestion by which this policy might be improved.

the amounts which are here referred to only the effects upon discipline due to payment of compensation.

Patients in hospital were granted a compensation of 100.00 per month and upward, and it must be evident upon reflection that the discharge of patients under such conditions became difficult because a man's compensation after discharge along was appreciably reduced, and the rate of compensation paid was high enough to induce many men to persuade themselves that they still needed hospital care and treatment. Under these conditions, their possible discharge was by no means easy or unconditional.

It may also be observed that there existed many and numerous delays in the payment of compensation, and the patients naturally resented this and also very naturally were inclined to blame the Public Health Service for they were the only representatives of the National Government with whom they came into daily contact. This proved a constant source of irritation and when the payments were made, it was not an unusual circumstance to have patients receive checks for many hundreds of dollars at one time. Needless to say this was extremely disruptive of morale and caused a great deal of drinking that resulted in serious consequences. Only one circumstance need be mentioned in order to make clear the kind of thing which is. A patient receiving a thousand dollars compensation would buy a motor car and then severely criticize the Public Health Service because he was not given a garage space at the hospital for his car. This may appear ridiculous, but in reality it was anything else. It was a very serious condition of affairs.

As a result of the situation which has been outlined above, there was encountered at least one disagreeable experience which resulted in

the closure of a hospital under circumstances prejudicial to public provi-sions. This occurred in a hospital known as the Fox Hills Hospital situated on Staten Island in Greater New York. This hospital, which was a war time structure, was hardly adaptable for the treatment of some other types of conditions and was acquired and used by the Public Health Service under protest.

It is believed that largely for political reasons this hospital became the object of the most severe criticism and the most severe attacks, and in spite of every endeavor on the part of the Public Health Service, the population seemed to not know [illegible], which was the purpose of the criticism. As was explained to me by certain organizations who were at the bottom of this criticism, "We are not throwing bricks at the Public Health Service, but the name of the Public Health Service happens to be in our way." Finally, the Public Health Service expressed its determination to the "Veterans" Bureau either to manage this hospital with the strictest sort of discipline or to close it, and the "Veterans" Bureau preferred to close it and undertook to do so, with the result that this Bureau was also severely criticisedfor its method of closing the place. The whole subject was one of constant daily [illegible] in the metropolitan press and became in reality almost a scandal, without justification.

Despite the fact that the hospital was an emergency place, it was well [illegible] and the men were well taken care of. The purpose of the criticism was to force [illegible] and construction of better hospitals.

Finally, it may be said that while these hospitals had their objectionable features and while their management offered difficulties, nevertheless, unbiased professional opinion supported the contention of the Public Health Service that the men treated in these hospitals received

good care, a wise consideration, and a high grade of professional treatment.

Records. The records and blank forms of an organization of this character deserve much thought and much consideration. The proper recording of work done is almost as important as the doing of the work itself. In this organization, records were voluminous since they pertained not only to administrative and fiscal matters but also to professional matters. Many of the methods adopted and many of the blank forms put into use were the result of careful thought and of large experience and therefore possessed great value. The use of professional records for statistical purposes as has been noted, in any great amount required a larger statistical organization than was planned to handle the same. The records themselves, however, were carefully kept and turned over to the Veterans' Bureau for future use. The statistical use of such records would prove a matter of considerable interest and would as well worth the time, effort and money expended.

Distribution of Authority. One of the difficulties never settled with a great satisfaction in a large organization of this type where a certain speed is necessary lies in the method of distributing authority in the central office to obviate unnecessary delays. This means obviously the breaking of matters up to several officials to give instructions and consequently to sign official letters. The only other resort is the use of a rubber stamp, which is always objectionable unless surrounded with careful limitations. Unless some system of distributing authority is adopted it practically means that the great bulk of correspondence and

instructions sent at [illegible] across one desk, which [illegible] [illegible] and delays the result.

On the other hand, [illegible] letters and domestic service with it many serious disadvantages, not the least of which is that all too frequent occurrence of having two individuals correspond with the same field unit concerning the same matter and taking opposite points of view.

In the organization [illegible] this difficulty was solved with a fair degree of satisfaction by the establishment of an executive office with two executives, one of whom handled all matters of [illegible] and the other, matters of [illegible] which, in his judgment were referred to the chief of the organization [illegible]. These executives had [illegible] to take pains to see that their own cooperation was effective.

Incidental to this was the necessity of the [illegible] of such correspondence, especially [illegible] different administrative units. This is [illegible] "red tape", but it is necessary if the organization is to function with any degree of efficiency. Care must be taken with such correspondence that it shall be so [illegible] as not to interfere with field activities by undue delay.

Investigations. This report would not be closed without some reference to the numerous official investigations the Public Health Service was subjected to during the continuance of this work. At least five or six such investigations were made, some of which were elaborate and others of which were simple in character, and after the [illegible] of the work and the transfer to the Veterans' Bureau the entire [illegible]

of the Public Health Service in the performance of this responsibility were carefully investigated by a committee appointed by the Senate. It is pleasant to record that in none of these investigations was anything found which would reflect discredit upon the integrity of the Public Health Service.

As to the cause of these investigations there were probably two elements in the situation which provoked distrust on the part of administrative authority of one kind or another. Some of these investigations were conducted by the Treasury Department. There is reason to believe that some of the distrust which existed for a while was probably provoked in the minds of persons already inclined to be suspicious, by the exaggerated talk of a dissatisfied employee who had left the Public Health Service and found employment in other executive departments of the government. It seems unfair and to the normal almost incredible that an employee of no large significance could have so easily sown in the minds of others distrust of a Bureau whose reputation for honesty and integrity has always been good. Yet such is the case and the exaggerations of the employee, who was probably animated by personal ambitions and a certain amount of spleen, probably provoked investigations which not only embarrassed the Public Health Service in the discharge of its important responsibility but also proved costly to the national government.

Repeated investigations, however, having disclosed nothing of significance, we were finally able to convince those in authority who possessed the power to make such investigations that the source of their distrust was not reliable and the investigations ceased.

1. [illegible]

The above report is briefly summarized below, and there are submitted in conclusion certain recommendations which are believed to be of much significance in relation to the work of the Public Health Service under possible similar future conditions.

1. The status, organization and functions of the Public Health Service are reviewed and its origin, evolution, and development briefly traced from its beginning as simply a marine service, to its recognition by Congress as the Federal Public Health Service charged with governmental responsibility under law.

2. Control is made concerning the statutory organization under which the Public Health Service is administered, in accordance with statutory provisions, with particular reference to the commissioned and other scientific personnel, especially with regard to the activities of the Service as related to the World War.

3. Attention is directed to the fact that, in spite of existing legislation designed to determine it, the place of the Service in the administrative organization of the National Government during a time of war, proved to be very unsatisfactory and very indefinite. His circumstance caused friction with the military forces and interfered with the best usefulness of the Service in action of national emergency.

4. The Public Health Service is somewhat unique in its organization and in its functions and responsibilities. Its administrative place and relationships in the National Government during a time

of war are not many of importance.

During the World War, by reason of internal disagreements and departmental action, it was not placed under the military services but retained its independence and attempted to co-operate with the military services in the discharge of the important functions for which it was responsible and at the same time extend these functions to meet necessities and emergencies created by the war.

In the above report, there is given at some length, both sides of the question, which is one of serious import not only to the work of the Public Health Service but seriously to its integrity in case the United States should be involved in another large war.

The majority of Service officers, and medical section of the Council of National Defense, and many eminent public health men, advocated that the Service be placed in the military forces and under their control for the period of the war in order to protect its functions and promote its usefulness as well as to coordinate all possible national effort under military control.

The Secretary of the Treasury, however, finally decided that the Service should remain under his supervision and discharge its functions independently under its own organization.

This placed the Service and its personnel in a very equivocal situation and its officers found themselves performing military duty without any recognition as military men. It created embarrassment and did much to undermine the morale of the service. It also crippled its usefulness.

As the War progressed the pressure became stronger, especially through the draft, the embarrassment grew greater and ultimately the Service functioned with great difficulty. Its position became so anomalous as seriously to threaten its integrity, and had the war lasted much longer, there are reasons to believe that the integrity of the Service could not have been maintained unless it were placed with the military forces of the United States and under their direction.

There exists an apparent good reason for the expressed fear that had the Service been placed under the military forces, its independence might, after the war, have been seriously threatened, if not destroyed, much to the detriment of public health in the United States and its future development.

5. A limited number of officers were detailed to the Navy in important positions and served with credit to themselves and to the satisfaction of the Navy. There were also a limited number of officers serving with the Coast Guard Service, many of them in the war zone. These officers also served with credit to themselves and to the satisfaction of the Coast Guard Service.

It may be added that all such officers received a recognized military status with all the privileges of men who had served with the military services during the war, thereby creating within the Public Health Service a distinction and a discrimination injurious to its best interests and especially to its morale.

6. Congress created a Reserve Corps of the Public Health Service which, to a certain extent, served a useful purpose during

and especially immediately after the war, but in making use of this legislation for war purposes, the primary intention, if not defeated, was at least misdirected.

This Reserve, quite similarly to the army Reserve, was not intended to be used for the employment of all sorts of officers on active duty although so used during the emergency of the war. Its intention was somewhat different and comprehended the creation of a group of eminent men closely allied to the service, possessing special qualifications, and forming in a way a large and important advisory body, members of which could be used on active duty for special purposes for which they might be undoubtedly eminently fitted. A Reserve of this character would add much to the prestige of the service and greatly enhance the value of its important work.

7. The functions of the Public Health Service at the time of the World War, under legislative enactments, are briefly stated as follows: marine hospital service for its beneficiaries; protection of the United States from introduction of diseases from foreign countries; prevention of interstate spread of diseases and suppression of epidemics; cooperation with State and city authorities in matters relating to public health; investigation of diseases of man and conditions affecting their spread, including the pollution of streams, lakes, and other navigable waters; the supervision and serial of biologic products, public health education and dissemination of health information.

8. The work of the service related to the war is important, varied, and deserves credit. It may be briefly summarized as follows.

although

Its hospitals were open to sick and disabled of the military forces and so used to a considerable extent. Officers were detailed in important positions to serve with the U. S. Navy and the Surgeon General of the Navy commanded their activities. Other officers were detailed in the war zone, and elsewhere to the Coast Guard Service, and performed their duties satisfactorily. The service undertook a scheme of extra-cantonment zone sanitation around military camps and performed a work of great service in the protection of the health not only of troops but of the communities in which they were assembled. The Service performed notable duty in regard to the tremendous influenza epidemic which swept the United States during the World War. It also extended its industrial hygiene for the protection of war workers. It supervised and introduced methods of control of venereal diseases. It used its hygienic laboratory for the supervision and control of biologic products which were used for the protection and treatment of troops in the field. And at the close of the war, for three years and a half, it organized all of the medical care and treatment of disabled veterans of the World War and carried on this function until the creation of the Veterans Bureau, to which it turned over a completed organization for this work. Needless to add, it also carried on its usual functions and continued to discharge the responsibilities for which it was created.

XI. RECOMMENDATIONS

The recommendations made below are not intended to be comprehensive. They include only those things deemed to be essential for giving the Public Health Service a consistent place in the national administrative organization during a time of war so that, coordinated under the military services, it may function with greater usefulness.

1. By far the most important of these recommendations, really fundamental in its nature, is the necessity for legislation which will not only definitely fix the administrative place of the Service during a time of war, with and under the control of the military forces, but will make such a change in its status mandatory and automatic, not dependent simply upon administrative decision, as now.

Experience has shown that any other form of legislation will not achieve the object desired, and it is believed that the placing of the Service with and under the military forces during a time of war is absolutely necessary not only for its most assistance, but for its ultimate protection.

Such legislation would have to be carefully considered with regard to its wordings, but there exists in other services some precedent which might serve as a guide in preparing the necessary bill.

It is believed that the same thing can be accomplished by administrative action, but experience in the last war has shown that this is not a dependable form of procedure, and it is regarded as a matter of too much importance not to be definitely fixed by law.

Needless to add, the law should definitely provide for the return of the Service to its status quo ante promptly upon the termination of hostilities.

2. Careful consideration should be given to the formulation in detail of a comprehensive program of the activities of this Service during a time of war. Such a program, carefully worked out, it is believed would prove of inestimable benefit to the military services and would also tend to direct the activities of the Service in those channels where it could prove itself most useful in a time of national emergency.

This program would of necessity be submitted to the criticism and approval of the military service, which, under the legislation, would have direction of the Public Health Service during a time of war.

3. Since the Reserve of the Public Health Service is likely to offer some difficulties during war time, it is deemed of particular importance that the Service should adopt a carefully considered policy with regard to the formation and use of this Reserve, both in peace times and in war times.

While it may have been necessary to use this Reserve during the World War for recruiting medical officers of all classes for general work, it is believed distinctly unwise to do so if such action is avoidable, which it probably would be if the Service were under the

direction of the military service.

At the same time, to create the proper reserve would undoubtedly not only lend prestige to the service but would increase its usefulness both in peace time and in war time.

It is believed that this reserve should be so constituted as to form a group composed of men whose education and training would not only serve to lend dignity to the service but also would make available under peculiarly flexible and happy conditions the service of experts in various fields which would enhance the value of the Public Health Service to the National Government and the people of the United States.

Arrangements should be made for these reserve officers to receive some training during each year, in order that they may become familiar with service methods and thereby be more useful upon occasion arises.

4. These various recommendations will undoubtedly [illegible] the question as to whether legislation should be so drawn as to place the Service during a time of war under the Army or under the Navy. At the present time, it would seem clear that the Service should be placed under the direction of the Army. This point determined, diplomatic discussions should take place with the proper representatives of the Army with regard to the character of legislation required and the activities of the Service under such legislation in case of emergency, with due regard to the usual responsibilities of the Service, many of which must be carried on even during war and during those for the protection of the health of the nation.

5. If these recommendations meet in general with Departmental approval, it is suggested that the Surgeon General might be authorized

to form a board of officers to make some more detailed consideration with the idea of making a comprehensive report as a basis for going into ultimately into effect.

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